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ABSTRACT

This report assesses the experiences of clients who had contact with or received drug abuse treatment from programs of the Addiction Services Agency in New York City and the Narcotics Treatment Administration in Washington, D.C. during the early 1970's. To answer the questions of what happens to former clients once they leave drug treatment programs and how those varying programs affected that outcome, random samples were drawn of clients who had entered any of several types of drug treatment, but who left in five days or less. Questions focused on the two month periods preceding drug treatment, following drug treatment, and preceding the interview. In general, former clients experienced a reduction in drug taking, an increase in employment, and a decrease in arrests. The study concludes that presence and type of treatment and clients' backgrounds were unrelated to the large behavior change experienced by them. Explanations for the changes fall into three major categories: (1) change in community attitude and knowledge, (2) the selection of interview subjects and (3) reduction of the availability and purity of drugs. Data tables are included. (Author/FC)

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Drug Treatment in New York City and Washington, D.C.

Followup Studies

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Drug Treatment in New York City and Washington, D.C.

Followup Studies

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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This monograph is a product of NIDA contract #ADM 271-76-4405, developed in 1976 to analyze and compare the results of followup studies previously performed at The Addiction Services Agency in New York City and the Narcotics Treatment Administration in Washington, D.C. The contract was performed by Burt Associates, Inc.

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PREFACE

This report details the findings of two studies conducted in the fall and winter of 1974-75 that attempted to follow up clients discharged from two large Eastern multimodality drug abuse treatment programs. The studies were conducted independently by MACRO Systems, Inc. in New York City and by Burt Associates, Inc. in Washington, D.C. Because of similarities in research design and the fact that the two studies were contemporaneous, the National Institute on Drug Abuse (NIDA) contracted with Burt Associates, Inc. to conduct further analyses and to meld the two projects into a single, comparative document.

These two followup studies remain important not only because they report findings on relatively large numbers of clients engaged in significant multimodality programs, but also because they represent a methodology which--for all of its shortcomings--has exerted an important influence on the drug abuse field. Therefore, this report is presented both to increase our awareness of what rehabilitative efforts can accomplish, and to add further to the continuing process of refining treatment and evaluation techniques.

March, 1977

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SUMMARY

This report assesses and compares the experiences of clients who had contact with and/or received drug abuse treatment from programs of the Addiction Services Agency in New York City and the Narcotics Treatment Administration in Washington, D.C. during the early 1970s. Separate analyses of the drug treatment programs of these agencies were performed during similar time periods and using similar client followup methodologies. The basic questions asked in both studies and addressed here are:

- What happens to former clients after they leave drug treatment?
- Are differing outcomes associated with different treatment regimens?

The first question may be answered by determining the status of former clients at the time of interview. The second question is considerably more difficult to answer. It requires that the effects of treatment be isolated from all other effects which might have influenced the posttreatment outcomes of the former clients.

Technically, answering the second question should require an experimental design in which prospective clients, who apply and are qualified for admission to the ASA or NTA drug treatment programs, are randomly assigned to treatment and control groups. However, given the social and political context in which drug treatment programs operate, such random assignment would be unacceptable.

Due to the impossibility of employing a truly experimental design, a "next best" alternative was sought in both studies.

Random samples of clients who had actually entered drug treatment were drawn retrospectively from various modalities of treatment provided by the two agencies: i.e., methadone maintenance, ambulatory, and residential therapeutic community in the ASA followup data; methadone maintenance and detoxification-abstinence in the NTA followup data. Since prospective clients could not be randomly assigned to control groups, comparison groups were constructed of individuals who had entered treatment, but who had left in five days or less.

Three types of behavioral outcomes were investigated in both studies:

- Drug use, including heroin use and other drug use
- Employment status, including related measures of socioeconomic productivity
- Criminal activity, including arrests and incarcerations.

Sample respondents in both studies were tracked and interviewed, and urine specimens were obtained from each respondent to validate their responses to questions concerning drug use. The interviews in both studies solicited information on client behavior during three periods of time:

- The two month period immediately before entry into drug treatment
- The two month period immediately subsequent to leaving drug treatment
- The two month period immediately prior to the followup interview.

Although there are distinct limitations to the available data, which require that caution be taken in expressing comparisons between the results of the two followup studies, certain conclusions can be summarized here.

A substantial reduction in drug taking occurred between the earliest two-month period before entering treatment and the final two-month period immediately prior to being interviewed (table 1, following). This general reduction in drug taking occurred for clients in all modalities of treatment under consideration. No evidence of substance substitution was found.[1] Employment increased, although this was somewhat less dramatic than the decrease in drug taking (table 2, following). There was also substantial reduction in the percentage of clients arrested (table 3, following), carrying with it the implication of a decrease in illegal activities.

These data show drug abusers progressing from frequent use of heroin and other illicit drugs and engagement in other illegal activities to considerably less involvement in illicit drug use and other illegal activities.

Comparisons were made among the three major groups of former clients in treatment for ASA--methadone maintenance, ambulatory unit, and therapeutic community. Similarly, comparisons were made between the former clients of the two modalities in NTA--methadone maintenance and detoxification-abstinence.

For the former ASA clients, differences in improvement among the groups were generally slight and not statistically significant. The exceptions were statistically significant differences between ambulatory and methadone maintenance groups in reduction of cocaine use (the latter showed a greater reduction), and between therapeutic community and methadone maintenance groups in employment (the former realized a greater increase).

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[1]Data on use of other drugs, including alcohol and cigarettes, are presented in the body of this report. Little evidence of substitution of alcohol and cigarettes was found and there was a general reduction in heavy cigarette smoking.

TABLE 1

DRUG USE
(percentage)

Frequency of Use	NTA			ASA		
	2 Months Before	2 Months After	Last 2 Months	2 Months Before	2 Months After	Last 2 Months
Heroin						
Not at all	2	55	65	20	73	86
Occasionally	26	33	30	13	15	11
Daily	72	12	5	67	12	3
Total	100	100	100	100	100	100
n=	189	189	189	373	369	370
Illegal Methadone						
Not at all	65	83	92	83	91	92
Occasionally	32	15	7	15	8	7
Daily	3	2	1	2	1	1
Total	100	100	100	100	100	100
n=	189	189	189	373	369	369
Cocaine						
Not at all	42	72	78	61	85	86
Occasionally	52	27	20	29	14	13
Daily	6	1	2	10	1	1
Total	100	100	100	100	100	100
n=	189	189	189	373	369	371
Amphetamines						
Not at all	75	80	86	86	97	97
Occasionally	18	16	13	12	3	3
Daily	7	4	1	2	0	0
Total	100	100	100	100	100	100
n=	189	189	189	373	369	369

TABLE 2

EMPLOYMENT
(percentage)

Program	Status	2 Months Before	2 Months After	Last 2 Months
NTA	Paid job	33	37	48
	Keeping house, student, job training	5	4	6
	Illegal activities	46	38	24
	All other activities	16	21	22
	Total	100	100	100
	n=	189	189	189
ASA[2]	Employed	21	43	57
	Not employed	79	57	43
	Total	100	100	100
	n=	368	352	374

[2]Other types of activities are not shown for reasons explained in Chapter V.

TABLE 3

ARRESTS
(percentage)

Status	NTA			ASA		
	2 Months Before	2 Months After	Last 2 Months	2 Months Before	2 Months After	Last 2 Months
Arrested	25	11	9	30	9	4
Not Arrested	75	89	91	70	91	96
Total	100	100	100	100	100	100
n=	188	188	188	361	347	358

INCARCERATIONS
(percentage)

Status	NTA			ASA		
	2 Months Before	2 Months After	Last 2 Months	2 Months Before	2 Months After	Last 2 Months
Incarcerated	12	9	12	21	7	4
Not Incarcerated	88	91	88	79	93	96
Total	100	100	100	100	100	100
n=	188	188	188	358	352	339

For the former NTA clients, no statistically significant differences were observed in changes in behavioral outcomes between methadone maintenance and abstinence clients among the three time periods. In addition, no significant differences were observed between clients who had left treatment in 1971, 1972, or 1973.

Drug Use

Comparisons were made in terms of each drug between each of the treatment groups and the comparison groups for ASA and NTA clients, respectively. No statistically significant differences were found to exist among groups with regard to change in drug usage between the period two months before treatment and the period two months immediately prior to the interview.

During the study's duration, 1971 to 1974, substantial changes occurred external to the treatment programs that could help to explain both the substantial decrease in heroin use and the lack of significant differences between the treatment and comparison groups. Of greatest significance was a substantial decrease in the supply and quality, and a rise in the price, of heroin. These factors made heroin usage by all groups more difficult, whether they had received treatment or not.

The reduction in the use of illegal methadone by both treatment and comparison groups during the last two month period immediately prior to interview was undoubtedly influenced by the tightening of Federal regulations governing the dispensing of methadone, inaugurated late in 1972.

Amphetamine use was also severely restricted when, in 1974, the Federal Government initiated a significant policy reducing availability; this was complemented by a similar, but separate, action of the District of Columbia. These undoubtedly affected the data for the two month period immediately prior to interview.

Employment

For NTA, the detoxification-abstinence group showed a significantly greater improvement in employment than the comparison group. For ASA, the therapeutic community group showed a significantly greater improvement than the comparison group. No other differences were found. Of course, employment is substantially influenced by economic conditions and government programs which lie outside the control of treatment.

Criminal Behavior

There were no statistically significant differences between treatment and comparison groups in frequency of arrests and whether time was spent in jail.

Multiple Behavioral Outcomes

A respondent was defined as a fully recovered person if, during the most recent two month period, s/he was:

- Using no illicit drugs (except marihuana)
- Not arrested or incarcerated
- Either employed, keeping a house, in school, or in vocational training.

A respondent was defined as a program failure if, during the most recent two-month period, s/he:

- Used an illicit drug daily, or
- Was incarcerated.

Between these two extremes of success and failure, several types of partial and marginal success were discriminated. The following matrix defines nine mutually exclusive and collectively exhaustive categories ranging from success to failure.[3]

Table 4
CATEGORIES OF SUCCESS (RECOVERY)

Extent of Recovery	Engages in Illicit Drug Use[4]	Arrested	Prosocial Employment
Full	No	No	Yes
Partial-I	No	No	No
Partial-II	No	Yes	Yes
Partial-III	No	Yes	No
Partial-IV	Yes, but not daily	No	Yes
Marginal-I	Yes, but not daily	Yes	Yes
Marginal-II	Yes, but not daily	Yes	Yes
Marginal-III	Yes, but not daily	No	No
Failure	Yes, daily or incarcerated		

For the former ASA clients, 49 percent of the respondents were fully recovered, 7 percent were failures, and the remaining 44 percent were either partially or marginally recovered. Eighty-two percent achieved either full or partial recovery. There were statistically significant differences in

[3]This is a modification of categories suggested by Barry S. Brown, "The Role of Research in a Narcotics Treatment Program," Drug Forum, Volume 3 (2), Winter, 1974, and G. E. Vaillant, "A Twelve-Year Follow-up of New York City Addicts: Volume I, The Relation of Treatment to Outcome, "American Journal of Psychiatry, 122:727-736, 1966.

[4]Except for marihuana.

recovery status only between the therapeutic community group and the comparison and methadone maintenance group respectively with regard to the proportion of fully recovered clients, but these results must be interpreted with caution.[5]

Twenty-two percent of the NTA respondents were fully recovered, 20 percent were failures, and the remaining 58 percent were either partially or marginally recovered. Fifty-seven percent achieved either full or partial recovery. The differences in recovery status among treatment groups were not statistically significant, nor were the differences among the NTA treatment and comparison groups.

Comparison Groups

Comparison groups were drawn randomly composed of clients who had remained in treatment no more than five days. It was later determined that 42 percent of the ASA comparison group and 20 percent of the NTA comparison group later reentered treatment prior to the followup interview. Thus, the comparison groups were not as "pure" as we would have liked. Because of this "contamination" of the comparison groups, further analyses were conducted in which the comparison groups were purified to include only clients who had received no more than a total of one day (NTA) or five days (ASA) of treatment, including all treatment episodes. Outcomes in the new comparison groups were compared to other clients: there were no statistically significant differences.

Explanatory Factors

Searches were made for possible reasons as to why there were essentially no significant differences in the behavior of former clients sampled among treatment and comparison groups. Analyses were conducted of factors that might explain outcomes. A considerable number of client background and characteristic variables were examined; none of these were significantly different among the NTA groups, but many were significantly different among the ASA groups.

A number of client background characteristics and outcome variables were analyzed through factor analysis (NTA only) and stepwise multiple regression analysis (ASA and NTA), in an attempt to establish relationships among the variables and determine what variables might explain variance in the dependent (outcome) variables.

The analysis showed that client outcomes are unrelated to any background variables included in the study.

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[5]Fifty-eight percent of the therapeutic community clients were fully recovered, compared to 42 percent for both the methadone maintenance and comparison groups. The difference is due to higher posttreatment employment rates for former therapeutic community clients.

Discussion

A review of the findings of this comparative study raises questions with regard to some of the common assumptions about drug treatment programs. One is struck not only by the relatively high rate of prosocial behavioral change taking place within the sample surveyed, but also by the fact that change took place virtually irrespective of the type of treatment initiated and, to a considerable extent, irrespective of whether or not clients remained in treatment for more than brief periods. NTA clients did equally well whether they stayed in treatment one day or five years (or shorter periods of time). ASA clients did equally well whether they remained in treatment for five days or for more than 364 days; however, the latter group had a significantly higher employment rate than other clients, except those in treatment 6-14 days. Perhaps the client is the best judge of how long a period of treatment is sufficient.

The study raises questions with respect to the comparative virtues of methadone maintenance vs. detoxification. Neither modality was found to be superior to the other in NTA. Again, perhaps treatment programs should be flexible, as was NTA, with respect to the modality in which the clients should be placed.

The study also raises questions with respect to the comparative virtues of ASA's methadone maintenance, ambulatory, and residential therapeutic community programs. No modality was found to be clearly superior to the others, although the residential therapeutic community had a slightly higher proportion of clients achieving full recovery. The difference was associated with a higher posttreatment employment level.

There has been a great deal of interest in demographic and background correlates of success in drug treatment. Some studies have produced limited evidence showing that clients with certain characteristics do better in treatment than others. In this study, demographic and background factors failed to explain success in treatment or lack thereof.

* * * * *

Chapter I of this report describes the Addiction Services Agency and the Narcotics Treatment Administration as they existed at the time of the studies, 1971-75. Chapter II describes the methodologies used in conducting the New York City and Washington, D.C. followup studies. In chapter III, profiles of the clients upon entering treatment are presented. Chapter IV compares the client behaviors during the periods before and after treatment. Chapter V searches for factors which might explain the results. Discussion of the results is presented in chapter VI.

A REPORT OF FOLLOWUP STUDIES CONDUCTED WITH FORMER CLIENTS OF DRUG TREATMENT PROGRAMS IN NEW YORK CITY AND WASHINGTON, D. C.

I

INTRODUCTION

This report draws on and compares the results of two followup studies conducted to determine the post-treatment functioning of former clients of the Addiction Services Agency drug treatment programs in New York City and the Narcotics Treatment Administration programs in Washington, D.C. Although highly similar in design, these two followup studies were conducted separately: the study in New York City was concluded in June 1975; the study in Washington, D.C. was concluded in February 1975.

Both studies called for selecting stratified random samples of former clients, interviewing them, and obtaining urine samples to serve as indicators of current drug usage and response validity. The basic issues addressed in the client interviews for both studies were:

- What happens to former clients after they leave treatment?
- Are differing outcomes associated with different treatment regimens?

Some differences existed in the methodologies applied in the two studies. These are explained in detail in chapter II. Briefly, the study of Addiction Services Agency clients drew its sample from persons who were enrolled or had entered treatment during the latter half of 1971, while the Narcotics Treatment Administration study drew from former clients who had entered and left treatment during January 1, 1971 to December 31, 1973. Interviews for both studies were conducted during the fall and winter months of 1974-75. Information was solicited on client behaviors in the two months immediately prior to entering treatment, in the two months immediately subsequent to leaving treatment, and in the two months immediately prior to the followup interview.

Both of these studies are recognized and often cited within the drug treatment research community as breaking new ground. The methodologies employed, although sometimes criticized, have remained as models and have been adapted and improved for subsequent studies. The findings retain their currency and importance. Both studies dealt with large client samples drawn from large multimodality public programs in large metropolitan areas with longstanding drug abusing populations. Therefore, the National Institute on Drug Abuse arranged for further analyses and comparisons of the two studies' data for publication in this report.

ADDICTION SERVICES AGENCY (ASA)

In 1971, at the time from which the client sample for the New York City followup study was drawn, there were four major sponsors of drug treatment in the City:

- Addiction Services Agency (ASA)--The ASA is an organizational element of the NYC Human Resources Administration. In 1971, the primary focus of the programs run directly by ASA and its delegates was on a drug free regimen. During the latter phases of the current study, the drug abuse treatment element of the Health Services Administration (see next • below) came under ASA and, with this, a greater emphasis upon methadone maintenance was adopted.

- Health Services Administration (HSA)--HSA is a department of the City Government. The abuse treatment program was originally located in the Health Department (an organizational element of HSA), but was transferred during the course of this study to ASA. Since the primary thrust of HSA programs involved methadone maintenance, this modality became an important part of ASA.

- Beth Israel Medical Center (Morris J. Bernstein Institute)--Beth Israel operated two separate methadone-based treatment programs for heroin addiction. One offered a short-term inpatient detoxification program and the other, methadone maintenance treatment.

- Numerous private treatment programs, receiving funds from both public (i.e., Federal, State, and/or local) and private sources. These programs utilized a number of different modalities.

The first two of these sponsors, ASA and HSA, were agencies of the City Government and were responsible for treating the majority of the drug abusing population. As noted, during the latter phases of the New York City followup study, the drug abuse treatment element of HSA was moved to the Addiction Services Agency.

Prior to 1965, drug programs in New York City had been accorded a relatively minor role in the City Department of Health.[1] Drug abuse and addiction,

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[1]This brief description of ASA's development relies heavily on a report prepared by William A. Diaz and Stephen M. David, "The New York City Addiction Services Agency -- A Political History 1965-72," (New York: Institute for Social Research, Fordham University, 1972).

however, became an issue in the mayoralty campaign of 1965. As a result of campaign pledges, the new mayor, John V. Lindsay, established an Office of the Coordinator of Addiction Programs (OCAP) within the Office of the Mayor in early 1966. The creation of this office was followed two months later by the passage of a statewide bill establishing a Narcotic Addiction Control Commission (NACC), charged with developing a massive statewide treatment program for drug addicts.

In the fall of 1967, OCAP became the Addiction Services Agency (ASA) and was established as part of the City's Human Resources Administration. Funding for ASA was provided by the City, the State (under NACC funding), and the Office of Economic Opportunity (OEO).

During this time, ASA began moving away from direct operations and toward an administrative, program by contract role emphasizing quality control and assessment. This evolution was completed in late 1971.

Through 1971, ASA and its delegates operated multimodal programs employing a wide range of treatment strategies. Each program combined a treatment effort with counseling services (drug and vocational counseling), and also included provisions to deal with ill or pregnant clients. The ASA client population in August 1971 was:

	%Enrolled	No. Enrolled	No. of Programs
• Total city-wide	100.0	18,072	235
• Methadone maintenance	55.1	9,958	92
• Drug free	44.9	8,114	143

The philosophy of the ASA programs (including the HSA component) included:

- Minimal waiting lists
- An equal reliance on drug free strategies and methadone maintenance
- Use of exaddict counselors in all treatment strategies
- Clear and limited program goals
  - -- Cessation of illegal drug use
  - -- Cessation of participation in illegal activities
  - -- Participation in jobs, education, job training
- Retention in treatment.

Admission to a particular program within the ASA network was determined by a potential client's score on an instrument utilized in the Pittel-Hare

Referral System. This system operates on the

> central premise. . .that successful treatment outcome of drug abusers (rehabilitation) depends on a proper matching of client needs with a treatment program geared to meet those needs. The client's needs are ascertained through the administration of an exhaustive questionnaire (either read to the client or used as the basis for a semi-structured interview). Based on the responses, a drug score, social stake score and a prognostic index are compiled. The Pittel-Hare theory reflects a belief that a greater amount of intervention in a client's life is required for someone with a high drug score and a low social stake score. Hence, a residential treatment center would be contrairdicated for a youthful drug abuser who was not addicted and came from a reasonably stable family.[2]

A client's score on the Pittel-Hare would generally enable either the client or the counselor to select a suitable program from a range of several modalities.

The three modalities reviewed in the followup study were methadone maintenance, therapeutic community, and ambulatory unit (outpatient drug free). ASA had not established uniform treatment procedures for each of these modalities; thus, it was not possible to describe a consistent approach followed by all the programs in any modality. Each program tended to function in a relatively unique manner in response to its own clientele, its catchment communities, and the administrative structure.

The following briefly describes each program for which information was available, as it existed during 1970-71.

- Therapeutic Communities--Four residential therapeutic communities were included in the sample:

  -- Phoenix House was a classical therapeutic community on the Synanon/Daytop model. It accepted detoxified clients from a variety of sources, including the criminal justice system. There were no demographic or drug of abuse qualifications for entry, although the clients were predominantly heroin abusers. It was a 24-hour residential program, operating as a closed heterogeneous, hierarchical society. The minimum time required for satisfactory completion of the program was two years and sanctions against leaving were exercised. The treatment regimen featured a fundamental rewards system for

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[2]Whiting, A., "Review of a CRU Retention Study," New York: Research Department, Addiction Services Agency, 1974, pp. 3-4.

step by step progression through a series of jobs, and an emphasis on honesty and disclosure. Group meetings were held frequently and group encounter therapy sessions three times per week. Phoenix House followed the classical Synanon/Daytop belief in the use of paraprofessional staff, and was staffed by exaddicts. In contrast to Synanon, it believed in reentry--moving people back into the society outside of the therapeutic community. Phoenix House had a strong educational program. It operated its own public school and a tutorial program. Some clients who were sufficiently advanced in the program attended high school outside of the facility. Following an initial six-month period, families of residents were involved.

-- Samaritan House followed a more contemporary model than Phoenix House and was considerably more oriented toward psychological and professional approaches to treatment. The program's induction phase featured psychological testing and preliminary evaluation. Based on a type of therapeutic community model, client progress was developmental, based on step by step progression through a series of jobs and increasing personal responsibility. Clients participated in individual counseling, group encounters, seminars, and recreational activities. The program had a strong residential education program providing classwork, tutoring, and educational placement. Parents were requested to become actively involved in the program.

-- Information on the Veritas treatment program is limited. It was a traditional therapeutic community apparently operated along the lines of Phoenix House.

-- Project Return was a residential treatment program for adolescent and young adult heroin addicts. The clients had to be detoxified prior to entry into the program. Treatment content was similar to the traditional therapeutic community model, but the methods reportedly were less punitive. The length of time required to complete the program averaged 13 months. The clinical staff were all exaddicts. The program had an extensive educational and tutorial program, and parents were involved through weekly parent group meetings.

- Ambulatory Programs--Seven ambulatory programs were included in the sample[3]:

  -- The "bulk" of Fort Greene's clients were heroin addicts. Based on the concept of self help, treatment goals were established to help addicts achieve attitude change, self discipline, reunion with their families, and independence from social service agencies. Services consisted mainly of group and individual therapy, recreation activities, work sessions, and job referral. The clinical staff was composed entirely of exaddicts.

  -- Project Revive admitted persons who were less than 22 years old, whose behavior marked them as drug prone, who were beginning to experiment with drugs or who had a history of use but were not hard-core users. Revive sought to achieve positive attitudinal and behavioral change through group encounters, individual counseling, tutoring, vocational counseling and placement, education in Puerto Rican and black culture and history, recreational activities, and progressively demanding work assignments and responsibilities. One-half of the clinical staff were exaddicts.

  -- Espada admitted drug users or experimenters, drug prone and/or acting out teenagers and their families. The majority of clients were heroin users. The program provided regular group therapy sessions, individual counseling, and weekly parent groups. A psychologist was available on a consultant basis, but all counselors were paraprofessionals. Classes were held in remedial education and were centered around math and verbal skills and in preparing clients for the G.E.D. exam.

  -- Genesis II postulated that there was a set of behaviors and attitudes which characterized the life of a drug user and that new patterns of behaviors could be established through

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[3]No descriptive information was available from ASA on three of these programs: ARTC, The Family, and Flushing Youth Center.

counseling. The program provided group and individual counseling, recreational activities, and encounters. G.E.D. preparatory courses were offered four nights a week. Urinalysis tests were performed two to three times per week. All staff except the Director were exaddicts.

- Methadone Maintenance--No descriptive information on the methadone maintenance programs is available from ASA. The programs were: ARTC, Bronx State, and Downstate.

A firm relationship existed between ASA programs and the criminal justice system. ASA or ASA delegates handled the clients who were referred by the courts or the New York City Department of Corrections. In 1971, LEAA began funding a Court Referral Project whereby substance abusers who had been arrested could be identified, interviewed, and, where appropriate, recommended for placement in a community based treatment program in lieu of prosecution and incarceration.

A second effort ASA carried out in conjunction with the criminal justice system was the Rikers Island Counseling and Referral Project. Begun in early 1972, it was designed to provide essential counseling services to sentenced adults and adolescents who had a history of drug abuse or addiction.

NARCOTICS TREATMENT ADMINISTRATION (NTA)

Prior to the start of the Narcotics Treatment Administration in February 1970, there were a number of limited efforts launched by various D.C. Government agencies to cope with the District's mounting drug problem. NTA was established by the D.C. Department of Human Resources as one of its five divisions, to lead and coordinate a comprehensive drug treatment effort, incorporating all existing city-operated programs.[4]

In 1971, NTA operated 11 facilities within the District of Columbia: eight outpatient and three inpatient. In addition, private contractors were operating two additional facilities. During 1972, there were 16 NTA facilities, 13 outpatient and three inpatient, and three additional facilities operated by contractors. In 1973, NTA operated 15 facilities--12 outpatient and three inpatient--and an additional three units were operated by private contractors.

NTA operated a multimodal program employing three treatment strategies:

- Abstinence
- Methadone detoxification
- Methadone maintenance.

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[4]"Report," Washington, D.C.: Professional Advisory Committee on Heroin Addiction, May 1971.

In addition, a three-week urine surveillance program was available for patients referred from the courts for drug use evaluation.

Each program combined a treatment effort with drug and vocational counseling, and also included provisions for clients requiring hospitalization, or who were ill or pregnant. The client population from which the NTA followup sample was drawn is shown below:

	May 1971	May 1972
• Total Number in Treatment	3,341 (100%)	4,176 (100%)
• Abstinence[5]	625 (19%)	665 (16%)
• Methadone Detox.	851 (25%)	1,018 (24%)
• Methadone Maint.	1,786 (54%)	2,493 (60%)
• Methadone Hold	79 (2%)	Discontinued

The philosophy of the NTA programs included:

- Extensive use of methadone for both detoxification and maintenance therapies
- Extensive use of exaddict counselors in all treatment strategies
- Primary emphasis on outpatient services, although inpatient beds were available
  -- Cessation of illegal drug use
  -- Cessation of participation in illegal drug use
  -- Participation in jobs, education, job training
- Retention in treatment.

The NTA also maintained a Treatment Model, with uniform admission criteria,[6] for each of its modalities:

- Methadone maintenance
  -- Must volunteer for maintenance

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[5]Majority of clients enrolled in abstinence programs were under 18 years of age.

[6]"Treatment Guidelines," Washington, D.C.: Narcotics Treatment Administration, April 1972.

-- Must have used heroin continuously for at least two years
-- Must be at least eighteen years old
-- Must have failed in prior detox attempt.

- Methadone detoxification (detox from heroin or methadone)
  -- Any client who has a history of less than two years' addiction to heroin without prior attempts at detoxification; or
  -- Any client who is under eighteen years old; or
  -- Any client who requests detoxification.

- Abstinence
  -- Any client who requests this type of treatment (or clients who, in the estimation of the counselor, do not have serious addiction problems).

All new clients and readmissions (i.e., clients who had not had contact with an NTA treatment program for 28 days) reported to a Central Medical Intake unit. The CMI was open from 9:00 a.m. to 7:00 p.m., five days a week, and provided uniform, standardized initial client orientation, multiphasic health screening, and referral to appropriate treatment modalities. The Central Medical Intake facility began operation in 1971. The following activities were performed at CMI:

- Identification screening
- Medical screening
- Diagnostic screening
- Provision of an identification card with a unique number assigned to each patient
- Data collection
- Assignment to treatment modality and treatment center.

All clients referred to a methadone detoxification or maintenance treatment program were interviewed upon arrival by a physician and counselor. This session was conducted primarily to verify addiction. Thus, the screening for addiction included:

- Medical examination at CMI--urinalysis and physical
- Interview at CMI with drug counselor--drug history
- Interview at treatment center with physician

- Interview at treatment center with exaddict counselor.

These steps were taken to preclude methadone administration to nonaddicts. A client failing to establish a record of addiction was referred, if s/he so desired, to an abstinence unit.

The following briefly describes the treatment regimens in effect in the various NTA modalities at the time of the Washington followup study:

- Methadone Maintenance--The initial daily dosage level was 15-50 mg. This dose was increased gradually on one of three maintenance dosage schedules over a two- to six-week period until the client was stabilized on a dosage of 50-80 mg. per day. The dosage level depended on age, size, duration of habit, and side effects. Dosage levels above 80-100 mg. were discouraged and dosage levels above 100-130 mg. were forbidden. Clients in Phase I maintenance were required to come to the treatment center five times per week. After the client was stabilized on methadone, s/he was transferred to a Phase II maintenance clinic. Based on performance (e.g., discontinued use of illegal drugs, employment or school, home life, etc.), the number of visits could be reduced to two per week until Federal regulations were revised late in 1972. While NTA initially believed that methadone maintenance would continue for an indefinite period, programs began to detoxify methadone clients, upon the client's request, whose life situation had been stable for six to twelve months. Clients who requested detoxification were transferred to a detoxification unit and slowly with drawn from methadone.[7] Clients were then strongly urged to enroll in an abstinence program (urine testing and counseling) for at least three months. NTA's methadone maintenance clinics operated on a staff to client ratio of 1:14, with each clinic including 11 counselors, 5 medical personnel, and 5 administrative staff.

- Methadone Detoxification--The initial dose was 15-25 mg. of methadone.[8] Depending on the client's response, this

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[7]Patients often reported it more difficult to kick methadone than heroin This apparently resulted from the impure nature of street heroin and from the longer duration of the action of methadone.

[8]Maintenance patients who attempted to detox had to begin at their current level (50-100 mg.).

dose may have been increased up to 50-60 mg. until the client was stabilized (i.e., was comfortable and had ceased heroin use). Then the client was placed on one of nine detoxification schedules and the stabilization dose was gradually reduced. Abstinence could be achieved somewhere between two weeks (administrative detox) and 25 weeks following the start of treatment.[9] Detoxification clients were not permitted to take medication home. Clients who failed at detoxification were aggressively counseled toward accepting maintenance treatment, provided they met the admission requirements. Clients completing the detoxification program were encouraged to enter the abstinence program for at least six months and participate in regular urine surveillance, individual and group counseling.

- Abstinence--Clients in abstinence programs received no methadone, but received regular urine surveillance, individual and group counseling, and vocational counseling. The majority of clients entering abstinence directly (as opposed to entering from detoxification) were under eighteen years old.

The majority of clients seventeen years of age and under were referred to abstinence programs. For these youthful clients, limited attempts were made with detoxification (low doses over three to 24 weeks) and maintenance (low dose, 60-70 mg., over a three-to twelve-month period). Youths received individual and group counseling, and medical treatment as required. A weekly family therapy session was also scheduled.

A firm relationship between NTA and the criminal justice system was maintained. Twenty-six percent of clients entering treatment during the period in question were referred by the criminal justice system. NTA handled all clients formally referred by the courts or the D.C. Department of Corrections as a condition of their release to the community. Liaison and surveillance of CJS patients was maintained by the Criminal Justice Surveillance Unit.

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[9]All but two schedules called for completion of detox within 90 days.

II

METHODOLOGY

As noted in the Introduction, the two followup studies employed somewhat different methodologies, This chapter describes the two methodologies, the limitations of the data, and the evaluation criteria applied.

ADDICTION SERVICES AGENCY

The sample of former ASA clients, were drawn from 14 cooperating programs, located in four of the boroughs of New York City. These programs included three methadone maintenance, four residential therapeutic community, and seven ambulatory counseling programs. The 14 treatment programs were selected and identified by the Addiction Services Agency. Some additional treatment programs, also identified, chose not to participate. Thus, the final sample must be considered biased by self selection.

Further, the 14 treatment programs can in no way be considered as representing the universe of each type of program, nor the universe of ASA clients.

Random samples totalling 782 clients, who were enrolled in or who entered ASA treatment programs during the last six months of 1971, were drawn from the 14 programs. The samples were stratified by modality and length of time spent in treatment.

Interviewing was conducted from August 6, 1974 through April 30, 1975. The following table distinguishes the total sample by treatment modality and indicates the number and percentage of sample clients successfully interviewed:

	Methadone Maintenance	Therapeutic Community	Ambulatory Unit	Total
• Total sample (number)	273	290	219	782
• Number dead	19	5	3	27
• Number interviewed	142	185	135	462
• Percent of total sample interviewed	52	64	62	59[1]

The completed interviews, distinguished by time in treatment, were:

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[1]The percentage of the total sample successfully interviewed becomes 63, if the number dead is added to the number interviewed.

Time in Treatment	Sample	Interviewed[2]	Percentage
• Graduates or still in treatment	150	122	81
• Over 12 months	142	75	53
• 3 to 12 months	136	75	55
• 10 days to 3 months	131	68	52
• Comparison group[3]	223	118	53
Total	782	458	59

The methodology employed in the ASA followup study included comparing the pretreatment and posttreatment behaviors of the sample of clients during three two-month periods:

- The two months prior to entering treatment
- The two months immediately following treatment
- The two months prior to the followup interview.

Changes in client behaviors (i.e., treatment outcomes) were measured in terms of frequency of drug use, criminal behavior, and employment or other prosocial activities.[4]

Because only 59 percent of the randomly selected sample of former ASA clients were located and successfully interviewed, serious question exists as to how representative the sample of interviewed clients was of the total sample. Unfortunately, little is known of the characteristics and backgrounds of the sample clients who were not located and interviewed. The discussion here considers only those variables for which data were available on both interviewed and noninterviewed sample clients.

Comparisons of clients interviewed with those not interviewed yielded the following results:

- Age--the clients interviewed tended to be younger than those not interviewed. For example, 20 percent of those

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[2]Excludes four cases not accounted for.

[3]Later refined to include only those clients in treatment 5 or less days.

[4]A description of the procedures actually used in finding the clients and conducting the interviews may be found in "Three-Year Followup Study of Addiction Services Agency Drug Program Clients: Phase II" and "Three-Year Followup Study of ASA Drug Program Clients: Phase III," New York: Macro Systems, Inc., 1975.

interviewed were less than 21 years of age, while only 10 percent of those not interviewed were less than 21. These differences were statistically significant.[5]

- Sex--the sex distributions were only slightly different and that difference in distribution was not statistically significant.

- Race--the race distributions among those interviewed and those not interviewed were significantly different.[6] While both groups contained approximately the same proportion of blacks (50 percent and 46 percent, respectively), they were quite different with respect to whites (44 percent and 22 percent, respectively) and "other" (6 percent and 32 percent, respectively).[7]

- Ethnicity--statistically significant differences occurred between those interviewed and those not interviewed.[8] The group of interviewed clients contained a substantially higher proportion of Puerto Ricans than the group not interviewed (75 percent and 57 percent, respectively).

- Educational Attainment--the differences were statistically significant both for highest grade completed,[9] and for whether the client had graduated from high school or had obtained a G.E.D.[10] Interviewed clients were slightly more likely to have attained a higher grade, and to be a high school graduate or have a G.E.D.

- Marital Status--there were no significant differences between the two groups on marital status.

These differences between the clients interviewed and those not interviewed would be of interest principally if it were found that the characteristics in question helped to explain outcomes. However, as noted in Chapter V, none of these characteristics contributed significantly to explaining

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[5] $\chi^2 = 40.4$, df = 5, $p < .005$.

[6] $\chi^2 = 99.2$, df = 2, $p < .001$.

[7] It is not clear why there were so many persons of "other" races included in the sample. ASA data indicate that only about one percent of clients were of "other" races, while the study data showed 16 percent. We, therefore, suspect this category is in error.

[8] $\chi^2 = 18.7$, df = 1, $p < .001$.

[9] $\chi^2 = 11.7$, df = 5, $p < .04$.

[10] $\chi^2 = 34.0$, df = 2, $p < .001$.

outcomes of clients. Therefore, although significant differences were found between the two groups of clients making up the sample, there was no evidence that these differences acted to bias the results.

NARCOTICS TREATMENT ADMINISTRATION

The parameters of the NTA followup study were specified by the Special Action Office for Drug Abuse Prevention (SAODAP), which antedated the National Institute on Drug Abuse and established original policies and priorities for the Federal Government's participation in the field of drug abuse prevention. The SAODAP study guidelines called for selecting a sample of 360 clients who had had contact with or received treatment services from NTA, interviewing these clients, and obtaining a urine sample from each. The basic issues addressed in the interviews and sought from the study were:

- What happens to clients after they leave treatment?
- Are different outcomes associated with different treatment regimens?

As in the case of the ASA followup study, because it was not possible to employ a rigorous experimental design with random assignment and the use of control groups, a "next best" alternative was developed for the NTA followup study. The NTA alternative was based on the quasi-experimental design known as the Nonequivalent Control Group approach.[11]

The initial universe for sample selection included all clients who had registered at NTA's Central Medical Intake unit between January 1, 1971 and December 31, 1973. During this period, the Central Medical Intake was the point of first contact and the only point of entry for all NTA clients. From this initial universe of all clients--dropouts and graduates alike; 10,807 clients in all--was excluded any individual who had not yet attained the age of 18 at the time of leaving treatment.

From the resulting universe of clients, samples were drawn retrospectively from clients who had entered methadone maintenance and abstinence programs. Because few NTA clients were enrolled in drug free programs, abstinence was defined to include methadone detoxification as well as drug free regimens; the great majority of abstinence clients in the study sample were enrolled in methadone detoxification programs.

A comparison group was constructed of individuals who had applied for treatment at NTA's Central Medical Intake and had been accepted, but who had left treatment within five days of admission. In fact, 55 percent of this comparison group had actually left treatment within one day, prior to obtaining their first medication or first counseling session, and had received no subsequent treatment.

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[11] Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research, Chicago: Rand McNally, 1963.

Because the period of time a client has been out of treatment may influence the posttreatment outcome, these samples were further segmented by the period during which each client left the treatment experience in question. Three periods were chosen: calendar years 1971, 1972, and 1973. Since interviews were conducted from August 1974 through January 1975, this meant respondents had been out of treatment roughly from one to three years.

The criteria for final selection to the categorical samples were:

- Methadone Maintenance clients--defined as those who had remained more than five days in treatment and who had spent at least 51 percent of the time in treatment in a methadone maintenance regimen.

- Abstinence clients--defined as those who had remained in treatment more than five days and who had spent at least 51 percent of the time in a methadone detoxification or abstinence program.

- Comparison clients--defined as those who had registered at NTA's Central Medical Intake unit, but who had left treatment within five days. This sample group was constructed by successively drawing all clients who had left treatment within one day, two days, three days, four days, and five days for each of the three years, until a sufficient number of comparison clients was obtained for each year.

The following matrix shows the final sample as it was partitioned:

	Left Treatment in: 1971	1972	1973	Total
• Methadone Maintenance	40	40	40	120
• Abstinence	40	40	40	120
• CMI Only[12]	40	40	40	120
Total	120	120	120	360

Forty names were randomly selected for each cell, using the NTA computer listings and the data contained in the files of the Central Medical Intake. Once the forty names in each cell were determined, no substitutions were permitted. During the tracking of the respondents, it was discovered that two of the

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[12]It was later discovered that 20 percent of this group subsequently reentered treatment.

respondents were actually the same person, registered and receiving treatment at NTA clinics under two different names. Therefore, the final sample size was reduced from 360 to 359.

Target clients were tracked under all known aliases. Approximately 95 percent of the NTA sample clients were located and 81 percent were interviewed successfully. In the majority of cases where the client was not located, the search revealed a fictitious and untraceable identity, a nonexistent or otherwise fictitious address or telephone number, or a false next of kin. The results of the tracking and interviewing effort are shown below:

	Number	Percent
• Initial sample	360	
• Client using two sampled names	1	
• Revised sample	359	100
• Client deceased	2	<1
• Client located	342	95
• Client refused to be interviewed or interview incomplete	50	14
• Successful interviews	291[13]	81
In institutions	23[14]	
Elsewhere	268	

The number of completed interviews by cell were:

	Left Treatment in: 1971	1972	1973	Total
• Methadone Maintenance	27	29	37	93
• Abstinence	34	33	29	96
• Comparison	34	36	30	100
Total	95	98	96	289

As in the Addiction Services Agency followup study, the characteristics of the interviewed clients were compared to those of the clients not interviewed. No significant differences were revealed.

Also as in the Addiction Services Agency followup study, the interviews of former NTA clients solicited information on behaviors in three periods of time: the two months prior to entry into treatment, the two months immediately subsequent to departure from treatment, and the two months prior to the interview.

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[13] Two interviews were received too late to include in the analysis.

[14] Twenty in jails or prisons; three in hospitals.

EVALUATION CRITERIA

The following measures of treatment effectiveness were employed as outcome evaluation criteria in both followup studies:

- Frequency of heroin usage prior to participation in the treatment programs compared to after the treatment experience
- Frequency of other drug usage prior to participation in the treatment programs compared to after the treatment experience
- Employment status prior to participation in the treatment programs compared to after the treatment experience
- Amount of criminal activity prior to participation in the treatment programs compared to after the treatment experience.

Thus, the criteria of effectiveness focus on the changes in behaviors in the above four categories as measured in the two-month periods immediately before and after participation in treatment, and in the two-month period immediately before the followup interview.

ANALYTIC APPROACH

Analyses were conducted on the data from both followup studies to determine the distribution and properties of each variable, and to see if there were statistically significant differences among the various sample groups. Initially chi square tests were used, testing for significance at the .05 level. The data were then grouped as input variables (i.e., client background and demographic characteristics) and outcome variables (i.e., drug use, criminal activity, socioeconomic productivity).

The outcome variables were compared by time periods--the two months prior to treatment, the two months following treatment, and the two months prior to interview--and means and distributions were tested for significance at the .05 level using F, t, and chi square tests.[15]

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[15]Technically, the analysis of variance (F test) assumptions are that the distribution of the variables are normal and the variances of distribution from the mean are equal. Because variances are almost never quite equal nor distributions quite normal, some error is introduced, the magnitude of which is not known. Therefore, significance levels in the vicinity of .05 should be regarded with caution. The F and t tests were used to determine whether differences between the three successive two-month periods and differences among treatment and comparison groups were statistically significant. The F test was used for each variable to check for differences in means among treatment, years, and their interaction in one analysis of variance. F tests were not used where distributions were binomial, because of the skewed distributions and the small sample sizes. Chi square tests, which make no assumptions as to distribution and variances from the mean, were employed in such cases.

Because the F and chi square tests showed that the nine NTA groups of respondents were homogeneous, the groups were collapsed into one for purposes of multivariate analysis. The ASA study's samples, on the other hand, exhibited statistically significant differences and so were each analyzed separately. Factor analyses were conducted on the NTA data, using 72 variables. Numerous stepwise multiple regressions were run on both the ASA and the NTA data, using various combinations of independent variables and alternative dependent variables for the entire sample and selected subgroups.

LIMITATIONS

Several major limitations should be noted in interpreting and comparing the results of these two followup studies.

First, the reader should remain aware that persons were assigned to treatment modality categories using only that modality in which they had spent the most time during the treatment experience under study. Thus, a single treatment modality is indicated for each client, although numerous clients undoubtedly changed treatment regimens in the course of the treatment experience and were involved in other treatment regimens in earlier and in subsequent treatment experiences. One can argue that in a real sense what is being explored is the impact of the treatment experience itself, rather than the impact of any single modality.

Second, it should be pointed out that although efforts were made to use comparison groups that had minimal treatment experience at the time of selection, there was nothing to prevent comparison group members from reentering treatment or from having been involved in a treatment program previous to the experience under study. Indeed, 42 percent of ASA's sample clients and 20 percent of NTA's sample clients later reentered treatment. An unknown number were involved in treatment experiences of some kind prior to the treatment experience under study.

Third, it should be pointed out that the ASA clients could have been invested in treatment continuously from 1971 until the time of the followup interview, while the NTA study was structured such that all subjects had to have left treatment in order to be eligible for selection.

Fourth, the NTA followup data include responses from only 81 percent of the sample, while the ASA data include responses from only 59 percent of that sample. In both cases, there may therefore be some bias, probably more for the ASA data because of the lower response rate. One cannot conclude that the interview responses are representative of the entire sample.

Fifth, bias may have been introduced by incomplete responses to interview questions. The n's in the ASA data fluctuate substantially between questions; this is less a problem in the NTA data.

Sixth is the issue of the validity of responses. In both studies, urine samples obtained from respondents were tested for the presence of drugs and the results compared to responses to questions concerning current drug use.

These comparisons showed a high degree of validity in both studies.[16] Responses to questions about arrests and incarcerations were compared to police records for the NTA sample; this also showed a high degree of validity. Such a comparison was not made for the ASA sample. Employment or school status were not validated for either sample.

It is interesting to note that, of the urine tests from former NTA clients, 27 percent were positive for preludin, 26 percent for morphine or quinine, and 17 percent for methadone. These clients were also tested for cocaine, codeine, amphetamines and barbiturates; only 1-2 percent of the urines were positive for each of these drugs. For the former ASA clients sampled, 20 percent were positive for morphine or quinine, and 30 percent were positive for methadone.[17] Cocaine and barbiturates were each detected in 2 percent of the former ASA clients' urines. The urines were not tested for any other drugs.

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[16]Urinalysis results showed that 88 percent of the NTA respondents and 95 percent of the ASA respondents gave answers that were consistent with the findings of morphine or quinine in their urine samples.

[17]Of the 90 ASA respondents whose urine tests were positive for methadone, 48 were in legitimate methadone programs at the time the specimen was taken. Thus, 13 percent of the urines taken reflected use of illegal methadone, while only 8 percent of the respondents stated that they used illegal methadone.

III

PROFILE OF CLIENTS ENTERING TREATMENT

As indicated in chapter II, data from the NTA followup study were based on random samples of clients who left treatment during the three year period 1971-73, while data from the ASA followup study represent clients who left treatment during 1971. This chapter presents a summary composite of the characteristics of interviewed clients at the time of their entry into treatment. All numbered tables in this and subsequent chapters are collected in appendix A: TABLES.

CLIENT CHARACTERISTICS

Table III-1 shows that the NTA clients were typically male (82 percent), black (86 percent) and relatively young (21 to 25). The ASA sample had a roughly similar proportion of males (78 percent), but a sharply different racial distribution (50 percent black). With respect to age, clients under the age of 18 were purposefully excluded from the NTA sample and, thus, only the ASA study had clients in the sample who were less than 18 years of age. However, while the differences in the age distributions are not substantial, the ASA sample has a somewhat higher proportion of older clients: 40 percent of ASA's sample were over the age of 25, compared to 32 percent for NTA.

BACKGROUNDS

Table III-2 depicts the backgrounds of the sample clients. Comparable data are not available for all of these variables. Data were not collected from the former ASA clients on birthplace, client caretakers until age 15, illegal drug use by client's family, veteran status, and mental health treatment prior to first entry. The data on educational level attained by each client's parents are also not comparable, because the NTA data consider the mother and father together while the ASA data separate them.

The patterns of client background appear to be roughly similar, but they are not precisely comparable. Clients entering NTA show a somewhat higher level of educational attainment than clients entering ASA: 40 percent of the former NTA clients had completed at least the twelfth grade by the time they entered treatment, as compared to 33 percent for the clients who entered ASA.

CLIENT STATUS AT ENTRY

Table III-3 shows that little data are available on the client status variables at entry into treatment at ASA. In terms of type of participation, a higher proportion of the former NTA clients were forced into participation by legal authorities (26 percent compared to 19 percent).

Table III-4 shows the age of the clients when they first participated in various types of crime. The former ASA clients show a marked pattern of beginning drug use at a substantially earlier age than the former NTA clients.

For example, 28 percent of the former ASA clients reported that they had first participated in a drug-related crime before the age of 14, compared to only 4 percent of the former NTA clients.

Nearly all the clients in both samples had at some time participated in drug-related crimes. For the other four categories of crime, the ASA data show extremely low n's--caused by incomplete interviews. Therefore, those data should be regarded with considerable caution. The available data seem to indicate a higher proportion of ASA clients involved in property crimes: 98 percent of the former ASA clients had participated in property crimes, 65 percent of them before the age of eighteen; 52 percent of the former NTA clients had participated in property crimes, 24 percent before the age of eighteen.

CLIENT BEHAVIOR PRIOR TO TREATMENT

Table III-5 shows that during the two-month period immediately prior to entering treatment, nearly all the former NTA clients used heroin at least occasionally and 69 percent used it daily. While the former ASA clients showed nearly as heavy daily use as those from NTA, 19 percent of them did not use it at all and only proportionately half as many used it occasionally. Former NTA clients also showed more use of illegal methadone, cocaine, amphetamines, marihuana, and alcohol at the time of entry into treatment. ASA clients showed somewhat greater use of barbiturates.

According to table III-6, a slightly higher proportion of the former ASA clients had been arrested during the two-month period prior to treatment and a higher proportion had been incarcerated. Tables III-7 and III-8 show that a higher proportion of the former NTA clients (34 percent compared to 23 percent) had engaged in prosocial activities, such as having a paying job or keeping house. Unfortunately, it is hazardous to compare data on engagement in other activities, as noted in the footnote to table III-8. Further, it should be noted that the ASA data on illegal activities are probably understated, as they are quite inconsistent with the data on arrests shown in table III-6. Taken at face value, the data in tables III-7 and III-8 show a much higher level of involvement in illegal activities for the clients entering NTA.

IV

TREATMENT EFFECTIVENESS:

ANALYZING CHANGES IN BEHAVIOR

This chapter addresses each of the evaluation criteria used to measure treatment effectiveness in the two followup studies:

- Frequency of heroin usage prior to treatment and after treatment
- Frequency of other drug usage prior to treatment and after treatment
  - -- Illegal methadone
  - -- Cocaine
  - -- Amphetamines
  - -- Barbiturates
  - -- Hallucinogens
  - -- Marihuana
  - -- Other drugs
  - -- Legal methadone, dilaudid, and minor tranquilizers (data from NTA, only)
  - -- Alcohol
  - -- Tobacco
- Employment and other prosocial activities prior to treatment and after treatment
- Amount of criminal activity prior to treatment and after treatment.

For each of these four effectiveness measures, the research questions originally posed are assessed:

- What happens to former clients after leaving treatment?
- What influences does treatment seem to have on posttreatment outcomes of former clients?

This chapter only addresses the behavioral changes associated with participation in the drug treatment programs of the Addiction Services Agency in New York City and the Narcotics Treatment Administration in Washington, D.C. Therefore, neither the ASA nor the NTA comparison group was considered in this analysis. Comparisons are made only between former ASA clients and former NTA clients who had participated in a treatment program for more than five days.

Few differences in effectiveness were identified between the treatment modalities of ASA and NTA, and only one of the modalities--methadone maintenance--is directly comparable between the two drug treatment agencies. For these reasons, as well as to simplify comparisons between former client groups, the different treatment modalities (i.e., methadone maintenance, ambulatory unit, and therapeutic community at ASA; methadone maintenance and detoxification-abstinence at NTA) were not considered individually in the tables prepared for this analysis.

The lack of comparability between the data of the ASA followup study and the data of the NTA followup study is again emphasized. The comparisons expressed in this chapter must be reviewed with considerable caution, particularly with regard to the affects of the different response rates, different client characteristics, etc.

All the tables discussed in this chapter are collected in appendix A: TABLES. In addition, extensive statistical tests of significance were also performed on the data. The results of these tests are presented in detail in appendix B.

COMPARISON OF ASA AND NTA DATA ON INDIVIDUAL TREATMENT OUTCOMES

Heroin

Table IV-1 shows heroin use declined dramatically for both the former ASA clients and the former NTA clients following treatment. The decline measured across the treatment experience itself (i.e., from behaviors reported for the two months prior to and the two months immediately following treatment) was statistically significant in all treatment modalities studied for both cities. Further improvement was reported for the time period between the departure from treatment and the conduct of the followup interview.

Illegal Methadone

Use of illegal methadone, also displayed in table IV-1, demonstrated the same pattern of improvement noted for use of heroin. The reported decline in illegal methadone use was more dramatic in the NTA followup study, where statistically significant improvement was noted for both methadone maintenance and detoxification-abstinence treatment modalities.

The ASA data, which included a considerably smaller percentage of clients indicating use of illegal methadone before treatment, consequently provided less basis for the measurement of improvement. Nevertheless, two of the three ASA treatment groups reported statistically significant improvement in behaviors between the two-month period prior to treatment and the two-month period prior to the followup interview.

Cocaine

After heroin, cocaine was the drug of use most often reported by respondents in both cities for the two-month period immediately prior to entering

treatment. Once again, a similar pattern of decline in use was reported by former clients of ASA and NTA. Table IV-1 shows an improvement immediately following treatment and a further improvement for the two month-period prior to interview. As with heroin, the improvement was statistically significant for all modalities at both ASA and NTA.

Amphetamines

Table IV-1 shows amphetamines were less popular than either heroin or cocaine with clients in both cities. But, here again, a similar improvement pattern was noted: decline in use was reported following treatment and further decline was reported for the period prior to interview.

However, once again the former ASA clients reported lower percentages of amphetamine users prior to treatment than the former NTA clients. This higher percentage of initial nonusers results in an asymptotic curve that precludes continued significant improvement by the few clients initially reporting amphetamine use. The percentage improvements, however, for both the ASA and the NTA client groups were similar: statistically significant improvements were reported for both NTA treatment modalities and for two of the three ASA treatment modalities.

It should be noted that a significant policy considerably restricting the availability of amphetamines--and thus the potential for amphetamine use--was initiated by the Federal Government and complemented by a separate District of Columbia government action shortly before the followup interviews were conducted. These actions undoubtedly influenced the reports of amphetamine use for the two-month period immediately prior to the interview among the NTA's former client groups. It may have also affected the reports of amphetamine use among the ASA's former client groups for the same two-month period.

Preludin, although subject to the same restrictions imposed on amphetamines in 1974, was the drug most frequently present in the urine samples taken during the interviews of former NTA clients, appearing in 27 percent of the samples. This could suggest substantial substitution of the less stringently controlled preludin for the more stringently controlled amphetamines, but such a factor cannot be clearly established due to the lack of data on preludin use among sample members for the two previous two-month study periods.

Barbiturates

As indicated in table IV-2, barbiturates were a comparatively unpopular drug among the clients admitted to treatment at both ASA and NTA. The improvement trend following treatment that has been noted for other drugs was again observed for barbiturates in both cities. But in this case, the initial lower level of use was reported by former NTA clients.

Nevertheless, ASA and NTA sample groups demonstrated an identical percentage of nonusers for the two-month period preceding the interview. Statistically significant improvement was reported for all three ASA treatment modalities and for one of the two NTA treatment modalities.

Hallucinogens

Use of hallucinogens was limited, as shown in table IV-2. The percentage of former NTA clients reporting hallucinogen use decreased slightly between the pretreatment period and the preinterview period. There were, however, no statistically significant changes reported by any of the NTA treatment modalities.

The former ASA clients reported a pattern of hallucinogen use similar to the former NTA clients. The ASA group, however, reported somewhat more improvement: two of the three ASA client groups achieved a statistically significant decrease in hallucinogen use.

Marihuana

Table IV-2 shows some reduction in marihuana use across the three study periods, although considerable continuing marihuana use is indicated. This is hardly surprising in view of the widespread use of marihuana in our society, particularly among the age groups most represented in the sample data.

The previously observed pattern of improved behavior (decline in reported use) is somewhat disrupted for marihuana, particularly among the former clients of ASA. These clients reported a reduction in marihuana use for the two-month period immediately subsequent to leaving treatment, but reported an increase in occasional use of marihuana for the two-month period immediately prior to the followup interview.

Nevertheless, both ASA's and NTA's former client samples reported a decline in marihuana use between entry into treatment and the two months prior to interview. This decline in use is statistically significant for all three ASA treatment modalities and for one of the NTA treatment modalities.

Other Drugs

The data indicating use of "other drugs" in table IV-2 present a somewhat ambiguous picture, as pointed out in footnote 4 to that table. While there is value in studying the use of "other drugs" reported by the former clients of NTA and ASA, comparison is made difficult because several of the drugs included in the ASA study's category are dealt with separately in the NTA study data.

Viewing the data on "other drug" use reported in the two followup studies separately, the former clients of NTA reported the familiar pattern of improvement--decline in use immediately subsequent to treatment and a further decline evident in the period prior to interview--that was noted for the majority of drugs cited individually. Statistically significant improvements were achieved by both NTA treatment modalities.

Former ASA clients reported a different outcome. Former clients of one ASA treatment modality reported increased "other drug" use; former clients of another modality reported initial improvement following treatment and then

reverted to pretreatment levels; and the third ASA treatment modality reported essentially no variation in "other drug" use. No statistically significant reductions in "other drug" use were reported for any of the ASA treatment modalities, although it should be reemphasized that--with the high initial pretreatment percentages of nonuse--statistically significant improvement reported by users of "other drugs" is difficult to determine.

Legal Methadone, Dilaudid, and Minor Tranquilizers

Table IV-3 presents data on three drug categories that were included in the NTA followup study, but that were not included in the ASA study. There was comparatively little use reported by former NTA clients of either legal methadone, dilaudid, or minor tranquilizers, but a statistically significant decline in dilaudid use was noted between the pretreatment and the pre-interview periods for both NTA modalities.

Alcohol[1]

A major concern among persons working in methadone programs is that clients may tend to substitute alcohol for heroin. Table IV-4 does not confirm this belief. Alcohol use among the former NTA clients was reported as essentially unchanged across the three time periods of the followup study. No statistically significant differences were reported for either of the NTA treatment modalities.

The former ASA clients indicated increased use of alcohol between the period prior to treatment and the period prior to followup interview. However, this increase was reported only for the occasional use of alcohol; reports of daily alcohol use declined slightly between the periods in question. A statistically significant increase in alcohol use was recorded for only one of the three ASA treatment modalities.

Tobacco[2]

Another form of substance substitution that has been suggested is increased use of cigarettes after withdrawal from heroin. The data obtained did not support this belief. As shown in table IV-4, a pattern of diminished cigarette use was indicated by the former clients of both ASA and NTA. This reduction in use did not take the form of elimination of all smoking behaviors, but rather was reported as a reduced amount of heavy smoking. This reduction was statistically significant for each of the three ASA treatment modalities.

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[1]It should be noted that the frequency of use categories for the ASA and NTA followup studies differ. This should not substantially affect the results, although the differences tend to deflate the ASA "occasionally" data.

[2]It should be noted that the frequency of use categories for the ASA and NTA data differ. This should not substantially affect these results, although it may account for the presence of statistically significant results in the ASA data and the lack of them in the NTA data.

Employment

Employment is an important outcome measure in the analysis of the effectiveness of the drug treatment experience. Table IV-5 indicates that the improvement pattern noted in drug use behaviors was reflected in the employment status of the former drug treatment clients, as well. More of the former ASA and NTA clients reported being employed in the two-month period immediately following treatment than in the two-month period prior to entering treatment, and a still greater percentage reported being employed in the two-month period immediately prior to the followup interview.

This improvement was especially dramatic for the former clients of ASA. Statistically significant improvement in employment status between the period prior to treatment and the period prior to interview was recorded for all three ASA treatment modalities.

Since other status categories were included in the data from the NTA followup study, statistical tests of significance were not applied to the NTA data on employment exclusively. Instead, employment status data were combined with data on other prosocial activities (e.g., housekeeping, job training, education) and compared to data on all other activities. Thus combined, statistically significant improvement was realized for former clients of NTA's detoxification-abstinence modality, but not for the former methadone maintenance clients.

Criminal Behaviors

Two measures of criminal activity were applied to the data from the two followup studies:

- Frequency of arrest
- Incarceration.

Table IV-6 shows the percentage of former ASA and NTA clients who had been arrested during the two-month period prior to followup interview was substantially less than the percentage arrested during the two-month period immediately prior to entering treatment. This decline in the incidence of arrests was statistically significant for all treatment modalities at both ASA and NTA. Furthermore, the trend toward improvement evident in the various categories of drug use data from the two-month period immediately following treatment and the two-month period immediately prior to interview was supported by the measurements of arrest frequencies, as well.

The second indicator of criminal behavior was incarceration: whether the client spent time in jail during the three study periods. Table IV-7 indicates that, while the former ASA clients reported substantial reductions in incarcerations across the three periods, the percentage of former NTA clients incarcerated during the three study periods did not change. The data for the former ASA clients followed the familiar improvement pattern noted in other categories of outcome measurement; the reductions in incarcerations were statistically significant for all three ASA treatment modalities. The data

for the former NTA clients showed slight (but insignificant) improvement immediately following the treatment experience, but then reverted in the period prior to interview to the same percentage of incarcerated clients exhibited in the period prior to treatment.

SUMMARY OF TREATMENT OUTCOMES

Table IV-8 summarizes the preceding discussion of data on cohort group treatment outcomes from the ASA and NTA followup studies.[3] For each behavioral outcome measure, the table indicates:

- Whether significant improvement was realized in any treatment modality, comparing the data from the two-month period immediately prior to treatment with the two-month period immediately prior to followup interview.
- Whether significant differences appeared between any two of the treatment modalities in either ASA or NTA.
- Whether significant differences appeared between any treatment modality and the comparison group in either ASA or NTA.
- Whether significant differences appeared between any treatment group and the comparison group in either ASA or NTA.

MULTIPLE BEHAVIORAL OUTCOMES

Thus far, this analysis has focused on one behavior at a time. Multiple behavioral outcomes were also addressed in terms of each respondent's:

- Drug use
- Arrests and incarcerations
- Employment.

In terms of treatment success, a fully recovered person was defined as one who, during the two-month period immediately prior to followup interview was:

- Using no illicit drug (except marihuana)
- Not arrested or incarcerated

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[3]As may be noted, this table summarizes not only the behavioral changes discussed in this chapter, but also those changes that occurred between and among treatment and comparison groups. These summaries are arranged in one table for greater ease of comparison.

- Either employed, keeping house, in school or in job (vocational) training.[4]

A respondent was defined as a treatment failure if, during the two-month period immediately prior to followup interview, s/he:

- Used an illicit drug daily, or
- Was incarcerated.

Between these two extremes of treatment success and treatment failure are several types of partial and marginal successes. The following matrix defines nine mutually exclusive and collectively exhaustive categories ranging from success to failure.[5]

Categories of Success (Recovery)

Extent of Recovery	Engaged in Illicit Drug Use[6]	Arrested	Prosocial Employment
Full	No	No	Yes
Partial-I	No	No	No
Partial-II	No	Yes	Yes
Partial-III	No	Yes	No
Partial-IV	Yes, but not daily	No	Yes
Marginal-I	Yes, but not daily	Yes	Yes
Marginal-II	Yes, but not daily	Yes	No
Marginal-III	Yes, but not daily	No	No
Failure	Yes, daily or incarcerated		

Table IV-3 indicates the behavioral outcomes, expressed in terms of extent of recovery, achieved by former clients of both the ASA and the NTA programs. The category "Partial" includes all four Partial categories and "Marginal" includes all three Marginal categories.

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[4]Unfortunately, the questionnaire used in interviewing ASA clients did not permit tabulation of respondents who were in vocational training or males "keeping house"; these activities should also be considered as prosocial activities.

[5]This is a modification of categories suggested by Barry S. Brown, "The Role of Research in a Narcotics Treatment Program," Drug Forum, Vol. 3 (2), Winter, 1974, and G. E. Vaillant, "A Twelve-Year Follow-up of New York City Addicts: Vol. I, The Relation of Treatment to Outcome," American Journal of Psychiatry, 122: 727-736, 1966.

[6]Except for marihuana.

The followup study data on former clients of the Addiction Services Agency in New York City recorded a substantially higher percentage of "fully recovered" clients (50 percent compared to 20 percent) and a great deal fewer "failures" (7 percent compared to 20 percent) than the followup study data on former clients of the Narcotics Treatment Administration in Washington, D.C. This higher success rate at ASA should be regarded with caution, because:

- A substantially lower proportion of the former ASA clients were heroin users (80 percent compared to 98 percent).
- The posttreatment employment data for the former ASA clients may be inflated (as noted in table IV-8).
- The types of programs from which the study samples were drawn were different in ASA and NTA.
- The low response rate of the ASA study data biases the sampling process.
- The differences in client characteristics in the ASA and the NTA followup data may act to bias the results in the direction of apparently higher success rates for the former ASA clients.

ANALYSIS OF DIFFERENT CLIENT GROUPINGS

The definitions of the comparison groups in both the New York City and Washington, D.C. studies were, necessarily, rather arbitrary. Both consisted of clients who had left treatment within five days of entry. However, 20 percent of the NTA comparison group members and 42 percent of the ASA comparison group members subsequently reentered treatment. Thus, the comparison groups were not as pure as one would have liked.

In view of this "contamination" of the comparison groups, different groupings seemed to be of interest. "Purer" comparison groups were established consisting of clients who had never received more than one day of treatment. However, in the case of the ASA data, insufficient numbers of persons appeared in these reconstructed samples; therefore, the original ASA comparison group, containing persons with no more than five days of treatment, was retained. Outcomes of these new comparison groups were compared to the outcomes of the comparison groups, but no statistically significant differences were revealed.

Relationships between total time in treatment and treatment outcomes were analyzed by partitioning clients into groups defined by <u>total</u> length of time spent in treatment. Thus, if a client entered treatment once for ten

days and a second time for 50 days, total time in treatment would be 60 days. The results of these analyses may be summarized briefly:

- The former NTA clients' behavioral changes were essentially the same whether they stayed in treatment one day or five years (or shorter periods of time).

- The changes in former ASA clients' behaviors were generally not associated with total time spent in treatment. However, clients in treatment more than 364 days were significantly more likely to become employed than those in treatment for shorter periods.[7] The changes in former ASA clients' behaviors were unrelated to number of treatment episodes.[8]

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[7]Except those in treatment 6-14 days.

[8]No analysis was conducted of the relationship between former NTA clients' behavioral changes and the number of treatment episodes.

V

A SEARCH FOR EXPLANATORY FACTORS

This chapter discusses possible reasons why there were few significant differences in the behaviors among the various groups of former clients sampled, and searches for factors that might explain outcomes. First to be examined are the backgrounds and characteristics of the clients, to determine whether there were significant differences among the groups. Second, possible differences in the groups are examined in terms of subsequent treatment and types of participation in ASA and NTA. Third, possible interpretations are analyzed through multivariate analyses. Finally, an analysis is made of the services actually received by the clients.

CLIENT BACKGROUNDS AND CHARACTERISTICS

The following client background and characteristic variables are examined in this section:

- Sex
- Race
- Age
- Highest grade completed in school
- Marital status
- Living with someone
- Age first used heroin
- Treatment prior to entering ASA or NTA
- Treatment after leaving ASA or NTA
- Type of participation in ASA or NTA.

No significant differences were found among the study groups of former NTA clients. In contrast, for the former ASA clients, statistically significant differences were found for the following variables:

- Age--methadone maintenance clients were significantly older than members of other groups.
- Marital status--the percentage of clients who are unmarried (i.e., single, divorced or widowed) differs among each of the groups, varying from 59 to 81 percent.

The differences are statistically significant among the groups, and between ambulatory unit clients and comparison and methadone maintenance clients, as well as between therapeutic community clients.

- Age first used heroin--the earlier the age the individual first uses heroin, the more s/he is likely to have adopted heroin use as a long-term lifestyle. A significant tendency was shown among methadone maintenance clients to begin heroin use at a later age than clients in other groups.

- Treatment prior to entering ASA--significantly higher proportions of methadone maintenance and therapeutic community clients had treatment prior to entering ASA, compared to ambulatory unit clients (39 and 34 percent compared to 21 percent, respectively).

- Treatment after ASA--42 percent of the comparison group entered treatment subsequent to ASA, compared to 21 to 46 percent of the treatment groups. These differences are statistically significant. These data raise serious questions regarding the adequacy of the comparison group.

- Type of participation--there are statistically significant differences among the groups in the percentage of clients who were forced by legal authorities to enter treatment (the range is 7 to 29 percent for the methadone maintenance and therapeutic community, respectively).

MULTIVARIATE ANALYSES

Table V-1, in appendix A, depicts dependent and independent variables that were used in stepwise multiple regression analyses conducted on the data from the ASA and NTA followup studies. Separate regressions were run for each of the dependent variables indicated on the table.

In preparing for the stepwise multiple regression analyses, client background and demographic characteristics variables were examined for both the ASA and the NTA study populations, to determine whether there were significant differences among the various sample groups.

The examination of background and characteristics data from the ASA study showed that there were a number of significant differences between the sample

groups drawn from the three ASA treatment modalities (i.e., methadone maintenance, ambulatory unit, and residential therapeutic community). Because these groups were found not to be homogeneous, separate regressions were run for each of the three ASA treatment sample groups and each was examined separately to determine whether combinations of characteristics might have explained differences in dependent variables (i.e., outcomes).

The analysis of the background and characteristics data from the NTA study indicated that the sample groups were homogeneous with respect to all background and demographic variables involved. Therefore, the NTA sample groups were collapsed into a single group and regressions were run on the one group to see whether combinations of characteristics might explain variances in outcomes.

The highest multiple correlation coefficient squared (R^2) for the NTA multiple regression runs was .23, indicating that none of the independent variables--when used in a linear relationship--showed a useful reduction in the dependent variable's variance. The correlation coefficients were also quite low, indicating no useful reduction in the independent variable. Therefore, none of these independent variables explained the behavioral outcomes.

A substantially similar pattern occurred with the ASA sample. As indicated previously, separate stepwise multiple regressions were run for each of the dependent variables for each of the three treatment groups. Only two of the squared multiple correlation coefficients exceeded 0.27. Both of these were for the ambulatory group:

- An R^2 of 0.46 was shown for the dependent variable, "major source of income (job, other)." However, 32 percent of the variance was explained by one independent variable, i.e., that the client held a job during the two-month period following treatment. All other independent variables accounted for only 14 percent of the variance, including colinearity.

- An R^2 of 0.43 was shown for the dependent variable, "whether a job was held in the past two months" (i.e., the two-month period immediately prior to the followup interview). But 28 percent of the variance was explained by the same independent variable as in the previous regression run. The combined explanatory power of the other independent variables was only 15 percent, including colinearity.

At first glance, this relationship seemed rather obvious: that an individual who was employed during the period two months after leaving treatment is more likely to be employed during the two months prior to the interview than one who is not so employed. However, this does not hold for clients outside of ambulatory programs. It was concluded that one could draw very little in the way of conclusions from this relationship and that essentially none of the independent variables explained the behavioral outcomes.

SERVICES RECEIVED BY CLIENTS

Analyses of services received by the former ASA clients was made very difficult by the extremely low response rates to questions concerning receipt of services. Only the individual and group counseling categories represent 75 percent or more of the respondents; the other service categories range from 23 to 52 percent respondent representation. Since such low response rates may yield spurious data, only the individual and group counseling services are discussed.

Eighty-seven to 93 percent of the former ASA clients (i.e., respondents) in each of the three ASA treatment groups stated that they had received individual counseling. While nearly all ambulatory unit and therapeutic community respondents had participated in group counseling (94 and 97 percent, respectively), roughly half (51 percent) of the methadone maintenance respondents had done so. Such variation in service participation may be attributed to differing emphases and types of services offered in particular treatment modalities.

Nearly all the NTA treatment group clients reported having received either methadone maintenance or methadone detoxification. However, few of the clients reported that they had received supportive services. Only 43 percent of the maintenance clients and 55 percent of the abstinence clients stated that they had received individual counseling. This surprisingly low percentage could be partially attributable to clients not reporting the encounters received with NTA staff as being "individual counseling" per se. Only 17 percent of the NTA clients reported having received group counseling and even smaller percentages reported having received job training, referral, placement counseling, rehabilitation counseling, or help in getting a job.

Reported receipt of services was unrelated to outcome for both the ASA and NTA samples.

Client attitudes and perceptions about drug treatment were addressed in the NTA study. However, this was not a principal focus of the study and only rather rudimentary questions were included in the interview instrument. Therefore, the results should be regarded with caution.

The analysis showed that there were no significant differences between treatment and comparison groups in terms of their personal reasons for participating in drug treatment. Approximately 70 percent of the treatment group clients stated that NTA was helpful to them and that the amount of time spent in treatment during their last month in NTA was adequate; 82 percent of them would recommend NTA to a friend with a drug problem. The data tend to show that many of the comparison group clients left NTA because they felt they could make changes or improvements in their lives without the help of formal drug treatment. However, client attitudes toward treatment were unrelated to outcomes.

VI

DISCUSSION

This comparative analysis of drug treatment outcomes for former clients of Addiction Services Agency programs in New York City and Narcotics Treatment Administration programs in Washington, D.C. raises questions to some of the common assumptions pertaining to drug treatment.

One is struck first by the very large behavioral change experienced by clients from both ASA and NTA. However, the data suggest that the effects of treatment cannot be separated from other factors. Moreover, clients' behavioral change was not only unrelated to presence and type of treatment, but was unrelated to clients' demographic or background characteristics as well. This absence of differences is surprising.

The "maturing out" hypothesis that has been advanced[1] seems inadequate to explain the findings reported here. In that formulation, the addict is seen as reaching a point at which the rigorous addict lifestyle is felt to be no longer feasible and/or desirable. The addict is forced to explore alternatives to heroin use and all that is involved in maintaining his/her use of heroin.

Whether or not the phenomenon of maturing out exists in fact, it does not appear to fit the NTA data, if only because of the limited time frames involved. Some former NTA clients were interviewed as little as one year and none more than four years after leaving NTA. There were no significant differences in reported outcomes in terms of time elapsed since leaving NTA. All former ASA clients were interviewed more than three years after leaving the program; because no measurements were taken (say) one or two years after leaving treatment, there is no way to test this hypothesis with the ASA data.

Three other efforts at explanation may have greater merit.

On the one hand, forces entirely outside the traditional treatment process may have been at work to help bring about change in the behavior of drug abusers. The community itself may have changed. Whereas illicit drug use may have been tolerated in the community in the period preceding clients' contact with NTA and ASA, i.e., in the middle and late 1960's, it may have become increasingly unacceptable as the real dangers of certain drugs (e.g., heroin) became known. Thus, if he/she was to remain acceptable to the community, the drug abuser was forced to explore other avenues of behaving. More pointedly, if what was once "cool" became foolish and weak, it may well have become necessary to reassess activity in regard to that behavior.

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[1] C. Winick, "Maturing Out of Narcotic Addiction," Bulletin of Narcotics 14: 1-7, 1962.

Whether or not this describes intellectual and behavioral changes in the decade 1965-1975 in New York City and Washington, D.C. is unknown but one point is worth noting. In a 1975 study conducted among juvenile users and nonusers of heroin in the District of Columbia, it was found that nonusers were most likely to relate their nonuse of heroin to information that only became available in the early 1970's. The juvenile nonusers reported first-hand knowledge of persons who became involved with heroin and whose behavior deteriorated and lives were threatened as a consequence. Since the peak years of heroin use in the District were 1966-1968, this was information simply not available to their elders--the addicts in this study. It suggests, but by no means confirms, a dramatic change in community awareness and thinking about heroin by the time the study was undertaken.[2] We are not aware of a similar study in New York City.

A second explanation for the lack of differences between treatment and comparison groups may lie in the data itself. In this regard, it can be hypothesized that persons who have made, and reneged on, a commitment to seek change (i.e., who enter treatment and then drop out of treatment immediately thereafter) represent a very select group of persons and are improperly cast into a comparison group. In this formulation, that group would consist, at least largely, of persons who had not quit on their resolve to seek behavioral change, but merely quit on the means to accomplish that change through the use of a formal treatment program.

A third explanation lies in the role of the criminal justice system's efforts to reduce the supply of illicit drugs and make the abuser's life-style more difficult to maintain. The number of arrests made by the District of Columbia Metropolitan Police Department did not vary markedly during the period in question, but purity of heroin decreased markedly and the price of heroin increased substantially, making it more difficult for a heroin addict to obtain the drug. Similar data specific to New York City are lacking, but strict Federal controls were instituted on the dispensing of methadone and (later) amphetamines during the time covered by the two followup studies.

It seems reasonable to expect these substantial changes in availability, purity, and price of illicit drug to result in decreased illicit drug taking.

In any event, a review of the findings from this study cannot help but raise further questions. One is struck not only by the relatively high rate of prosocial behavioral change taking place within the ASA and NTA samples surveyed, but also by the fact that change takes place irrespective of the type of treatment initiated and, to at least some extent, irrespective of whether or not treatment is instituted. In the NTA data, clients receiving no treatment realized behavioral changes as great as clients receiving treatment. In the ASA data, a similar, though not as uniform, pattern was seen.

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[2]Starlett R. Craig and Barry S. Brown, "Comparison of Youthful Heroin Users and Nonusers From One Urban Community," International Journal of the Addictions, 10 (1): 53-64, 1975.

Moreover, the NTA clients did equally well whether they stayed in treatment one day or five years (or shorter periods of time). Changes in the ASA clients' behavior were generally not associated with total time spent in treatment. However, clients in treatment more than 364 days were significantly more likely to become employed than those in treatment for shorter periods.[3] Perhaps the client is the best judge of how long a period of treatment is sufficient.

The study raises questions with respect to the comparative virtues of methadone maintenance vs. detoxification. Neither modality was found to be superior to the other in the NTA data. Again, perhaps treatment programs should be flexible, as was NTA, with respect to the modality in which the clients are placed.

The study also raises questions with respect to the comparative virtues of ASA's methadone maintenance, ambulatory, and residential therapeutic community programs. No modality was found to be clearly superior to the others, although the residential therapeutic community had a slightly higher proportion of clients achieving full recovery. The difference was associated with a higher posttreatment employment level.

There has been a great deal of interest in demographic and background correlates of success in drug treatment. Some studies have produced limited evidence showing that clients with certain characteristics do better in treatment than others. In this study, demographic and background factors failed to explain success in treatment or lack thereof.

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[3]Except those in treatment 6-14 days.

APPENDIX A: TABLES

TABLE III-1

CLIENT CHARACTERISTICS
(percentage)

	NTA (n=289)	ASA (n=457)
Sex		
Male	82	78
Female	18	22
Race		
Black	86	50
White	14	44
Other	--	6
Age		
Less than 18	0	3
18-20	26	17
21-25	42	40
26-30	20	22
31-36	5	10
Over 36	7	8

TABLE III-2

CLIENT BACKGROUNDS: NTA
(percentage)

Birthplace (n=151)*	
Washington, D.C.	59
Other	41
Client Caretakers Until Age 15 (n=289)	
Parents	89
Other	11
Caretakers' Work History (n=288)	
Never worked	3
Worked occasionally	15
Worked regularly	82
Educational Level Attained by Clients' Parents (n=289)	
Grades 1-8	18
Grade 9	11
Grade 10	11
Grade 11	11
Grade 12	28
Above grade 12	21
Illegal Drug Use by Clients' Family (n=288)	
No	89
Yes	11
Highest Grade Completed (n=288)	
Grades 1-8	6
Grade 9	7
Grade 10	25
Grade 11	22
Grade 12	33
Above grade 12	7
Veteran Status (n=233)*	
Not a veteran	89
Veteran	11
Mental Health Treatment Prior to First Entry (n=227)*	
Never treated	95
Treated	5

*Source: CMI Files

(Table III-2 continues.)

TABLE III-2 (continued)

CLIENT BACKGROUNDS: ASA
(percentage)

Both Parents Living At Home When Client Was Youth (n=457)		
	Yes	54
	No	46
Parents' Work History (n=396)	Mother	Father
	Never Worked	35	4
	Worked Occasionally	25	12
	Worked Regularly	40	84
Educational Level Attained by Clients' Parents	(n=335) Mother	(n=261) Father
	Grades 1-6	15	20
	Grades 7-9	16	16
	Grades 10-11	29	28
	Grade 12	32	24
	Above Grade 12	9	12
Highest Grade Completed (n=456)		
	Grades 1-8	6
	Grade 9	14
	Grade 10	20
	Grade 11	27
	Grade 12	23
	Above Grade 12	10

TABLE III-3

CLIENT STATUS UPON ENTERING NTA
(percentage)

Living Arrangement (n=208)*	
Alone	13
Spouse	14
Parents	35
Other relatives	11
Friends	19
Institution (hospital, halfway house, etc.)	7
No stable arrangement and other	1
Number of Dependents (n=162)*	
None	49
One	22
Two	20
Three or more	9
General Health Status[1] (n=183)*	
Excellent	23
Good	53
Fair	20
Poor	4
Duration of Daily Heroin Use (n=162)*	
No days	1
16-180 days	3
181-365 days	7
1-2 years	22
Over 2 years	67
Daily Heroin Use (in dollars) (n=106)*	
Less than $6	13
$6-40	42
$41-100	31
$101-150	10
More than $150	4
Time Incarcerated (n=198)*	
Never	60
1-5 days	3
6 days-1 year	15
1-2 years	7
2-4 years	4
4-10 years	9
More than 10 years	2
Type of Participation (n=286)	
Voluntary	74
Forced by legal authorities	26

*Source: CMI Files

[1]Physician's assessment following physical examination.

TABLE III-3 (continued)

CLIENT STATUS UPON ENTERING ASA
(percentage)

Living arrangement (n=456)	
Alone	21
With someone else	79
General Health Status 2 Months Before[2] (n=341)	
Excellent	68
Good	29
Fair	3
Poor	0
Incarceration status (n=447)	
Never incarcerated	33
Incarcerated one or more times	67
Type of participation (n=390)	
Voluntary	81
Forced by legal authorities	19

[2]Self assessment.

TABLE III-4

AGE OF CLIENT WHEN FIRST PARTICIPATED IN CRIME
(percentage)
NTA

Type of Crime*	Never Involved	Age When First Involved: 13 or less	14-15	16-17	18-19	20-25	Over 25
Drug Related	2	4	20	30	23	19	2
Property	48	6	8	10	13	11	4
Violent	73	1	1	5	7	11	2
Victimless	69	1	3	5	6	13	3
Other	96	0	0	1	1	2	0

*n=288 for all rows

ASA

Type of Crime	Never Involved	Age When First Involved: 13 or less	14-15	16-17	18-19	20-25	Over 25
Drug Related (n=450)	3	28	26	22	12	7	2
Property** (n=295)	2	15	18	32	16	13	4
Violent** (n-130)	4	2	9	24	29	27	5
Victimless** (n=27)	19	4	7	15	33	18	4
Other** (n=49)	8	0	14	23	16	20	19

**These data should be viewed with considerable caution, due to the low n's attributable to missing data.

TABLE III-5

FREQUENCY OF DRUG USE: TWO-MONTH PERIOD PRIOR TO ENTERING TREATMENT
(percentage)

	NTA				ASA			
Drug	Not At All	Occasionally	Daily	n	Not At All	Occasionally	Daily	n
Heroin	3	28	69	289	19	14	67	456
Illegal Methadone	64	32	4	289	82	15	3	455
Cocaine	42	51	7	289	60	29	11	456
Amphetamines	72	21	7	289	87	11	2	455
Barbiturates	82	16	2	289	74	20	6	455
Hallucinogens	87	12	1	289	89	10	1	454
Dilaudid	86	11	3	289	--	--	--	--
Minor Tranquilizers	90	9	1	289	--	--	--	--
Other Drugs	91	8	1	289	97	2	1	368
Marihuana	26	43	31	289	46	33	21	456
Alcohol	36	54	10	289	--	--	--	--
Cigarettes	12	53	35	289	--	--	--	--

TABLE III-6

ARRESTS AND INCARCERATIONS: TWO-MONTH PERIOD PRIOR TO ENTERING TREATMENT
(percentage)

Arrests	NTA (n=288)	ASA (n=444)
Not Arrested	76	71
Arrested	24	29

Incarcerations	NTA (n=287)	ASA (n=439)
Not Incarcerated	87	79
Incarcerated	13	21

TABLE III-7

EMPLOYMENT: TWO-MONTH PERIOD PRIOR TO ENTERING TREATMENT
(percentage)

NTA

Status	Percent
Paid job	34
Keeping house	5
Student, job training	0
Illegal activities	43
All other activities	18
Total	100
n=	289

ASA

Status	Percent
Paid job	23
No paid job	77
Total	100
n=	451

TABLE III-8

PRIMARY NON-JOB-RELATED ACTIVITY TWO MONTHS PRIOR TO ENTERING ASA[3]

Activity	Percent
Housewife	1
Student	7
Drug Program	2
Using Drugs	38
Illegal Activities	10
Hanging Out	33
Other	9
Total	100
n=	387

[3]Caution should be exercised in interpreting this table. The item asked "(While out of work and not looking for a job or receiving job training), how did you spend most of your time?" Those responding in Table III-7 that they were employed during this two-month period should not have replied to the item cited in this table. This was not the case: 13 percent of methadone maintenance, 2 percent of ambulatory, 10 percent of therapeutic community, and 7 percent of comparison respondents replied as shown on Table III-8. These respondents may not have been employed for the full two-month period and thus may have been responding for their activities in the partial period. Data are not available to either support or deny this supposition.

TABLE IV-1

DRUG USE
(percentage)

Frequency of Use	NTA			ASA		
	2 Months Before	2 Months After	Last 2 Months	2 Months Before	2 Months After	Last 2 Months
Heroin						
Not at all	2	55	65	20	73	86
Occasionally	26	33	30	13	15	11
Daily	72	12	5	67	12	3
Total	100	100	100	100	100	100
n=	189	189	189	373	369	370
Illegal Methadone						
Not at all	65	83	92	83	91	92
Occasionally	32	15	7	15	8	7
Daily	3	2	1	2	1	1
Total	100	100	100	100	100	100
n=	189	189	189	373	369	369
Cocaine						
Not al all	42	72	78	61	85	86
Occasionally	52	27	20	29	14	13
Daily	6	1	2	10	1	1
Total	100	100	100	100	100	100
n=	189	189	189	373	369	371
Amphetamines						
Not at all	75	80	86	86	97	97
Occasionally	18	16	13	12	3	3
Daily	7	4	1	2	0	0
Total	100	100	100	100	100	100
n=	189	189	189	373	369	369

TABLE IV-2
DRUG USE
(percentage)

Frequency of Use	NTA			ASA		
	2 Months Before	2 Months After	Last 2 Months	2 Months Before	2 Months After	Last 2 Months
Barbiturates						
Not at all	85	89	93	73	92	93
Occasionally	12	10	5	21	6	7
Daily	3	1	2	6	2	0
Total	100	100	100	100	100	100
n=	189	189	189	373	369	369
Hallucinogens						
Not at all	89	94	93	89	97	96
Occasionally	10	6	7	10	3	4
Daily	1	0	0	1	0	0
Total	100	100	100	100	100	100
n=	189	189	189	373	369	369
Marihuana						
Not at all	27	35	36	46	69	59
Occasionally	43	41	37	32	25	34
Daily	30	24	27	22	6	7
Total	100	100	100	100	100	100
n=	189	189	189	373	369	369
Other Drugs[4]						
Not at all	94	97	98	97	98	94
Occasionally	5	3	2	3	0	1
Daily	1	0	0	0	2	5
Total	100	100	100	100	100	100
n=	189	189	189	373	369	369

[4]Comparability of NTA-ASA data regarding use of other drugs is limited; dilaudid, minor tranquilizers, and legal methadone were not categorized as "other drugs" in the NTA study while they were, if mentioned, so categorized in the ASA study. The NTA study dealt separately with these drugs: see Table IV-3.

TABLE IV-3

DRUG USE[5]

Frequency of Use	N T A		
	2 Months Before	2 Months After	Last 2 Months
Legal Methadone			
Not at all	85	95	92
Occasionally	4	1	2
Daily	11	4	6
Total	100	100	100
n =	189	189	189
Dilaudid			
Not at all	86	92	93
Occasionally	11	7	6
Daily	3	1	1
Total	100	100	100
n =	189	189	189
Minor Tranquilizers			
Not at all	94	94	95
Occasionally	4	6	4
Daily	2	0	1
Total	100	100	100
n =	189	189	189

[5]No separate data were compiled for these drugs in the ASA study.

TABLE IV-4

DRUG USE
(percentage)

Frequency of Use	NTA		
	2 Months Before	2 Months After	Last 2 Months
Alcohol			
Not at all	37	40	39
Occasionally	54	52	53
Daily	9	8	8
Total	100	100	100
n =	189	189	189
Cigarettes			
Not at all	12	12	12
1 pack or less/day	53	60	63
More than 1 pack/day	35	28	25
Total	100	100	100
n =	189	189	189

Frequency of Use	ASA		
	2 Months Before	2 Months After	Last 2 Months
Alcohol			
Rarely	45	37	29
Occasionally	37	46	57
Daily	18	17	14
Total	100	100	100
n =	312	307	323
Cigarettes			
Rarely	8	12	5
1 pack or less per day	50	56	59
1.5-2 packs per day	27	23	28
2 packs per day	15	9	8
Total	100	100	100
n =	359	341	336

TABLE IV-5

EMPLOYMENT
(percentage)

Program	Status	2 Months Before	2 Months After	Last 2 Months
NTA	Paid job	33	37	48
	Keeping house, student, job training	5	4	6
	Illegal activities	46	38	24
	All other activities	16	21	22
	Total	100	100	100
	n=	189	189	189
ASA[6]	Employed	21	43	57
	Not employed	79	57	43
	Total	100	100	100
	n=	368	352	374

[6]Other types of activities are not shown for reasons explained in the comparative report. Further, the ASA data are not comparable to the NTA data.

TABLE IV-6

ARRESTS
(percentage)

Status	NTA			ASA		
	2 Months Before	2 Months After	Last 2 Months	2 Months Before	2 Months After	Last 2 Months
Arrested	25	11	9	30	9	4
Not Arrested	75	89	91	70	91	96
Total	100	100	100	100	100	100
n=	188	188	188	361	347	358

TABLE IV-7

INCARCERATIONS
(percentage)

Status	NTA			ASA		
	2 Months Before	2 Months After	Last 2 Months	2 Months Before	2 Months After	Last 2 Month
Incarcerated	12	9	12	21	7	4
Not Incarcerated	88	91	88	79	93	96
Total	100	100	100	100	100	100
n=	188	188	188	358	352	339

TABLE IV-8

SUMMARY OF BEHAVIORAL OUTCOMES

Behavioral Outcome Measure	Significant Improvement in any of the Treatment Groups; Most Recent 2 Months Compared to 2 Months Before Treatment?		Significant Difference Between any two of the Treatment Groups?		Significant Differences Between any of the Treatment Groups and Comparison Group?		Significant Differences Among all Treatment Groups and the Comparison Group?	
Drug Use	ASA	NTA	ASA	NTA	ASA	NTA	ASA	NTA
Heroin	Yes	Yes	No	No	No	No	Yes[7]	No
Illegal Methadone	Yes	Yes	No	No	No	No	No	No
Cocaine	Yes	Yes	Yes	No	No	No	Yes	No
Amphetamines	Yes	Yes	No	No	No	No	No	No
Barbiturates	Yes	Yes	No	No	No	No	No	No
Hallucinogens	Yes	Yes	No	No	No	No	No	No
Other Drugs[8]	No	Yes	Yes	Yes	No	No	No	No
Marihuana	Yes	No	No	No	No	No	No	No
Alcohol	Yes	No	No	No	No	No	No	No

(Table IV-8 continues.)

TABLE IV-8 Continued

Cigarettes	Yes	No	No	No	No	No	No	No
Employment[9]	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Criminal Activity								
Arrests	Yes	Yes	No	No	No	No	No	No
Incarcerations	Yes	No	No	No	No	No	No	No

[7]There were no significant differences between any of the Treatment Groups or between any of the Treatment Groups and the Comparison Group (t test); a significant difference among the groups, however, was obtained at the .04 level (F test). This is probably a statistical artifact.

[8]Includes dilaudid, minor tranquilizers, and other drugs.

[9]For NTA includes holding a job, keeping a house, attending school or vocational training. For ASA includes only holding a job.

TABLE IV-9

EXTENT OF RECOVERY
(percentage)

Extent of Recovery	NTA	ASA
Fully	20	50
Partially	37	33
Marginally	23	10
Failure	20	7
Total	100	100
n=	189	374

TABLE V-9

VARIABLES INCLUDED IN STEPWISE MULTIPLE REGRESSIONS

Independent Variables	NTA	ASA
Sex	X	X
Race	X	X
Age	X	X
Highest grade completed	X	X
Married	X	X
Living with someone	X	X
Caretaker's work history	X	X
Heroin use 2 months before entering treatment	X	X
Prior drug treatment	X	X
Drug treatment after leaving	X	
Voluntary vs. involuntary participation	X	X
Major source of income 2 months before entering treatment (job, other)	[10]	X
Number of associates using drugs 2 months before entering treatment	X	X
Number of associates using drugs 2 months after leaving treatment	[10]	X
Number of associates using drugs past 2 months	[10]	X
Job 2 months before entering treatment (yes, no)	[10]	X
Job 2 months after leaving treatment (yes, no)	[10]	X
Lived at one place in the last 2 months	X	
Used heroin in the last 2 months[11]	X	
Total arrests in the last 2 months[11]	X	
More than one drug[11]	X	
Employed in the last 2 months[11]	X	
Number of years gone to school since leaving treatment	X	
Longest period of time client lived in one place during 2 months prior to interview	X	
Number of places lived during last 3 years	X	
Days sick in bed during 2 months prior to being interviewed	X	
What adults the client lived with most of the time until age fifteen (parents, other)	X	
Years of school by client	X	
Drug use by persons in client's household when growing up	X	
Was the amount of time spent in the clinic at each visit enough?	X	

[10]Included in factor analysis only; not used in stepwise regression due to multicolinearity.

[11]Also used alternatively as dependent variable.

TABLE V-9 Continued

	NTA	ASA
Was methadone maintenance or another activity most helpful?	X	
Number of arrests	X	
Was client incarcerated during the 6 months prior to first entering treatment?	X	
Longest time client held a job	X	
Number of days client worked during the 2 months before first entering treatment	X	
Source of funds 2 months before first entering treatment (illegal activities or other)	X	
Source of funds 2 months before entering treatment (Social Security, VA benefits or unemployment; other)	X	
Dependent Variables		
Used heroin last 2 months	X	X
More than one drug used last 2 months	X	
Cigarettes used last 2 months	X	
Alcohol used last 2 months	X	
Total arrests last 2 months	X	
Number of days worked last 2 months	X	
Illegal activities last 2 months	X	
Major source of income last 2 months (job, other)		X
Job held last 2 months		X

APPENDIX B

RESULTS OF STATISTICAL TESTS OF SIGNIFICANCE

This appendix presents the results of statistical tests of significance conducted on selected demographic and outcome variables drawn from the data of the Addiction Services Agency and the Narcotics Treatment Administration followup studies. These tests were performed to determine whether the magnitudes of behavior changes indicated in the data as taking place between the initial pretreatment period and the two posttreatment periods are statistically significant. The two periods of comparison are bound by:

- The two-month period immediately prior to entry into treatment and the two-month period immediately subsequent to leaving treatment--labeled 2 BEFORE VS. 2 AFTER in the following tables.

- The same two-month period immediately prior to entry into treatment and the two-month period immediately prior to the followup interview--labeled 2 BEFORE VS. LAST 2 in the following tables.

For ASA, the categories of treatment are methadone maintenance, ambulatory unit, therapeutic community, and comparison. For NTA, the categories of treatment are methadone maintenance, abstinence, and comparison.

Additional test results are included that express the statistical significance of behavioral changes reported between treatment groups within the two programs.

HEROIN

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Maintenance	13.2	92	<.001
	Abstinence	14.0	95	<.001
	Comparison	11.2	99	<.001
2 Before vs Last 2	Maintenance	16.1	92	<.001
	Abstinence	18.1	95	<.001
	Comparison	15.0	99	<.001

A S A

SIGNIFICANT TESTS

Variable Description	Group	F Test	t Test	DF	Significance
2 Before vs 2 After	Comparison	--	6.2	81	<.001
	Ambulatory Unit	--	10.6	107	<.001
	Methadone Maintenance	--	12.7	106	<.001
	Therapeutic Community	--	15.3	153	<.001
	Comp. vs Methadone Maintenance	--	-2.8	187	.031
	Comp. vs Therapeutic Community	--	-3.1	234	.014
	Among Groups	4.4	--	3	.005
2 Before vs Past 2	Comp.	--	13.6	81	<.001
	Ambulatory Unit	--	13.3	105	<.001
	Methadone Maintenance	--	18.9	109	<.001
	Therapeutic Community	--	20.9	152	<.001
	Among Groups	2.8	--	3	.041

COCAINE

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Maintenance	5.9	92	<.001
	Abstinence	5.1	95	<.001
	Comparison	5.8	99	<.001
2 Before vs Last 2	Maintenance	6.7	92	<.001
	Abstinence	5.6	95	<.001
	Comparison	7.7	99	<.001

A S A

SIGNIFICANT TESTS

Variable Description	Group	F Test	t Test	DF	Significance
2 Before vs 2 After		--	3.2	81	.003
	Ambulatory Unit	--	3.2	107	.002
	Methadone Maintenance	--	6.2	106	<.001
	Therapeutic Community	--	7.2	153	<.001
	Among Groups	3.3	--	3	.021
2 Before vs Last 2		--	4.9	81	<.001
	Ambulatory Unit	--	3.7	105	<.001
	Methadone Maintenance	--	7.7	110	<.001
	Therapeutic Community	--	6.0	152	<.001
	Ambulatory vs Methadone Maint.	--	-3.3	215	.007
	Among Groups	3.1	--	3	.026

AMPHETAMINES

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Comparison	2.9	99	.006
2 Before vs Last 2	Maintenance	2.7	92	.008
	Abstinence	4.2	95	<.001
	Comparison	4.3	99	<.001

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Ambulatory Unit	2.3	107	.027
	Therapeutic Community	3.7	153	<.001
2 Before vs Last 2	Methadone Maintenance	3.1	108	.003
	Therapeutic Community	2.9	151	.004

BARBITURATES

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Maintenance	3.2	92	.002
	Comparison	2.5	99	.01
2 Before vs Last 2	Maintenance	3.5	92	<.001
	Comparison	2.9	99	.004

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Ambulatory Unit	4.5	107	<.001
	Methadone Maintenance	3.4	106	<.001
	Therapeutic Community	5.1	153	<.001
2 Before vs Last 2	Ambulatory Unit	2.7	81	.008
	Methadone Maintenance	4.3	106	<.001
	Therapeutic Community	4.6	108	<.001
		5.1	151	<.001

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Maintenance	3.5	92	<.001
	Abstinence	3.3	95	.002
	Comparison	3.5	99	<.001
2 Before vs Last 2	Maintenance	4.9	92	<.001
	Abstinence	5.4	95	<.001
	Comparison	5.3	99	<.001

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Methadone Maintenance	2.6	106	.012
	Therapeutic Community	3.4	153	<.001
2 Before vs Last 2	Comparison	2.2	80	.032
	Ambulatory Unit	2.2	105	.028
	Methadone Maintenance	3.2	109	.002

LEGAL METHADONE

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Abstinence	3.1	95	.003

DILAUDID

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs Last 2	Maintenance	2.2	92	.03
	Abstinence	2.8	95	.006

MINOR TRANQUILIZERS

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Comparison	2.2	99	.03

HALLUCINOGENS
A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Ambulatory Unit	2.7	107	.009
	Therapeutic Community	3.6	153	<.001
2 Before vs Last 2	Ambulatory Unit	2.3	105	.024
	Therapeutic Community	2.7	151	.008

ALCOHOL USE
A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs Last 2	Ambulatory Unit	-2.6	85	.012

CIGARETTE USE
A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Ambulatory	2.1	99	.035
	Therapeutic Community	4.1	147	<.001
2 Before vs Last 2	Ambulatory	18.3	101	<.001
	Methadone Maintenance	18.4	107	<.001
	Therapeutic Community	22.3	148	<.001
	Comparison	13.8	77	<.001

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Maintenance	2.0	92	.05
	Comparison	3.4	99	.002
2 Before vs Last 2	Maintenance	2.3	92	.02
	Comparison	2.0	99	.05

A S A

SIGNIFICANT TESTS

Variable Description	Group	F Test	t Test	DF	Significance
2 Before vs 2 After	Comparison	--	2.8	81	.007
	Ambulatory Unit	--	4.3	107	<.001
	Methadone Maintenance	--	4.0	106	<.001
	Therapeutic Community	--	8.0	153	<.001
	Comp. vs. Therapeutic Commun.	--	3.0	234	.017
	Therapeutic Commun. vs Meth. Maint.	--	3.3	259	.008
	Among Groups	5.1	--	3	.002
2 Before vs Last 2	Comparison	--	2.4	82	.019
	Ambulatory Unit	--	3.4	105	.002
	Methadone Maintenance	--	2.0	109	.049
	Therapeutic Community	--	5.0	153	<.001

OTHER DRUGS

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs 2 After	Maintenance	2.3	92	.03
	Comparison	2.6	99	.01
2 Before vs Last 2	Maintenance	2.1	92	.04
	Abstinence	2.0	95	.05
	Comparison	2.9	99	.005

S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	DF	Significance
2 Before vs Last 2	Therapeutic Community vs Meth. Maint.	3.1	211	.014

ARRESTS

N T A

SIGNIFICANT TESTS

Variable Description	Group	X^2 Test	DF	Significance
2 Before vs Last 2	Maintenance	10.5	1	<.005
	Abstinence	14.5	1	<.005
	Comparison	14.0	1	<.005

A S A

SIGNIFICANT TESTS

Variable Description	Group	X^2 est	DF	Significance
2 Before vs 2 After	Methadone Maintenance	10.1	1	.002
	Ambulatory	5.6	1	.012
	Therapeutic Community	28.6	1	<.001
2 Before vs 2 After	Comparison	11.7	1	<.001
	Methadone Maintenance	20.0	1	<.001
	Ambulatory	23.1	1	<.001
	Therapeutic Community	37.6	1	<.001

INCARCERATIONS

N T A

SIGNIFICANT TESTS

Variable Description	Group	X^2 Test	DF	Significance
2 Before vs Last 2	Comparison	4.5	1	.05

A S A

SIGNIFICANT TESTS

Variable Description	Group	X^2 Test	DF	Significance
2 Before vs 2 After	Therapeutic Community	36.7	1	<.001
	Comparison	6.1	1	.011
2 Before vs Last 2	Methadone Maintenance	5.4	1	.02
	Ambulatory	4.5	1	.04
	Therapeutic Community	35.6	1	<.001
	Comparison	8.6	1	.003

EMPLOYMENT STATUS

N T A

SIGNIFICANT TESTS

Variable Description	Group	t Test	F Test	X^2 Test	DF	Significance
2 Before vs 2 After	Abstinence	-2.2	--		95	.028
2 Before vs Last 2	Abstinence	-4.7	--		95	<.001
	Maint. vs Abstinence	3.5	--		185	.003
	Abstinence vs Comparison	-2.9	--		194	.014
	Among Groups	--	7.0		2	.002
Last 2	Maint. vs Abstinence			4.8	1	.05
	Abstinence vs Comparison			4.2	1	.05

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	F Test	DF	Significance
2 Before vs 2 After	Ambulatory	3.8	--	105	<.001
	Methadone Maintenance	2.2	--	92	.028
	Therapeutic Community	5.4	--	151	<.001
	Comparison vs Therapeutic Community	-3.3	--	229	.008
	Among Groups	--	4.8	3	.003
2 Before vs Last 2	Comparison	2.7	--	82	.009
	Ambulatory	5.9	--	106	<.001
	Methadone Maintenance	4.1	--	108	<.001
	Therapeutic Community	9.0	--	152	<.001
	Comparison vs Therapeutic Commun.	-3.5	--	234	.004
	Therapeutic Commun. vs Meth. Maint.	-3.4	--	260	.006
	Among Groups	--	6.5	3	<.001

AGE OF CLIENT AND MARITAL STATUS

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	F Test	X^2 Test	DF	Significance
Age of Client	Among Groups	--	--	93.143	15	<.001
	Among Groups	--	30.096	--	3	<.001
	Comparison vs Methadone Maint.	-4.436	--	--	193	<.001
	Comparison vs Methadone Maint.	3.678	--	--	235	.002
	Ambulatory vs Methadone Maint.	-6.569	--	--	218	<.001
	Methadone Maint. vs Therapeutic Commun.	9.581	--	--	264	<.001

SIGNIFICANT TESTS

Variable Description	Group	t Test	F Test	X^2 Test	DF	Significance
Marital Status	Among Groups	--	6.827	--	3	<.001
	Comparison vs Ambulatory	3.479	--	--	189	.004
	Ambulatory vs Methadone Maint.	-3.678	--	--	217	.002
	Methadone Maint. vs Therapeutic Commun.	2.847	--	--	263	.029

SUBSEQUENT DRUG TREATMENT

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	F Test	X^2 Test	DF	Significance
Subsequent Drug Treatment	Post-ASA Treat. vs No Post-ASA Treatment	--	--	25.5	3	<.001
	Methadone Maint. vs Ambulatory	--	--	12.5	1	<.001
	Methadone Maint. vs Therapeutic Community	--	--	15.1	1	<.001
	Therapeutic Commun. vs Comparison	--	--	9.9	1	<.01
	Ambulatory vs Comparison	--	--	8.3	1	<.01

TYPE OF PARTICIPATION

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	F Test	X^2 Test	DF	Significance
Type of Participation in ASA	Among Groups	--	--	21.1	3	<.001
	Methadone Maint. vs Therapeutic Community	--	--	17.18	1	<.001
	Methadone Maint. vs Comparison	--	--	10.05	1	<.01
	Ambulatory vs Therapeutic Community	--	--	4.64	1	<.05

AGE FIRST USED HEROIN

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	F Test	X^2 Test	DF	Significance
Age First Used Heroin	Among Ages	--	--	41.8	12	<.001
	Methadone Maint. vs Therapeutic Community	5.847	--	--	258	<.001
	Among Groups	--	9.5	--	3	<.001

PRIOR DRUG TREATMENT

A S A

SIGNIFICANT TESTS

Variable Description	Group	t Test	F Test	X^2 Test	DF	Significance
Drug Treatment Before ASA	Pre-ASA Treat. vs no Pre-ASA Treatment	--	--	8.739	3	.03
	Ambulatory vs Methadone Maint.	--	--	7.61	1	<.01
	Ambulatory vs Therapeutic Community	--	--	4.219	1	<.025